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Discovering Our Aviation Heritage

From the Atlantic to the Pacific and from the Canadian to the Mexican border and all along the Gulf of Mexico there is a host of historic sites that illustrate the history of American aviation. Many of these sites are listed in the National Register of Historic Places. The documentation of these sites for listing in the National Register provides a unique database and educational resource for the American people. The preservation of these sites, and their associated museums, illustrates an important link with our aviation heritage. No matter where you live in the United States there is probably an aviation-related historic site near you awaiting your visit. The following articles illustrate just a small segment of these resources.

Bill Chapman's article tells us about Wright Brothers National Memorial, now a unit of the national park system, and the site associated in the minds of most Americans with the Wright Brothers and the development of the first airplane. While the first sustained flight in a heavier-than-air machine was made here by Wilbur and Orville Wright on December 17, 1903, there is more to the story. Before and after the events of that momentous day in North Carolina, the Wright Brothers lived and worked on the development of the airplane in Dayton, OH. Ron Johnson's article relates this lesser-known part of the Wright Brothers' story. Wilbur and Orville Wright built the world's first successful airplane in Dayton, making that city the birthplace of aviation. A visitor to Dayton today can walk or bike an aviation trail and see the Wright Brothers Cycle Shop, Hawthorn Hill—the home of Orville Wright, Carillon Park—the home of the Wright Flyer III Machine, and the Huffman Prairie—the site of the world's first flying field. The Huffman Flying field eventually evolved to become the site of Wright-Patterson Air Force Base, now the largest air force base in the United States and the site of the finest aviation museum in the country.

In the years after the development of the airplane by the Wright Brothers, American aviation fell into a period of decline. The article by Harry Butowsky on the development of the Variable Density Wind Tunnel at the Langley Research Center in Hampton, VA, illustrates this process of decline was arrested. As a result of the activities of the National Advisory Committee on Aeronautics, founded in 1915, American aviation literally soared to the edge of

space at the Edwards Air Force Base. In our final article, we see that with the establishment of the National Aeronautics and Space Administration we reached for the Moon and beyond.

These articles illustrate only a small sample of the aviation-related resources that are now listed on the National Register and preserved for the enjoyment and use of future generations.

Readers of CRM who are interested in more information on these properties should contact the National Register of Historic Places, Interagency Resources Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127.

Wright Brothers National Memorial: Short History

William Chapman

Cathleen Turner

The Wright Brothers National Memorial in Kitty Hawk, NC is something of an anomaly among historic sites. The original location of Orville and Wilbur Wright's successful glider experiments of the early 1900s and also of the first powered flight of December 7, 1903—the 120-foot culmination of many years of study and experiment—the Kitty Hawk site itself possesses nothing in terms of historic buildings or features directly associated with the Wright Brothers early experiments. During the period when the Wright Brothers lived on the Outer Banks of North Carolina, the only distinguishable natural landmark was a large sand dune, known locally as Kill Devil Hill. Orville and Wilbur, who had been attracted to the area by reports from a correspondent in the local U.S. Weather Bureau station on the favorable wind conditions along the North Carolina coast, had added a simple frame "quarters" and a frame hangar for their use while in residence (Combs and Caidin 1979a and 1979b). Both buildings were of board-and-batten construction and did not survive the brothers departure for Dayton, OH (after seasonal use of the Kitty Hawk "camp") to begin what was to become their successful business careers promoting the airplane they had invented (Howard 1988).

In the years following the initial experiments, the "quarters" and hangar collapsed and the Kill Devil Hill, which had provided the necessary incline for the track-launched experimental gliders and motor-powered airplane, drifted several hundred feet to the southwest. There was little thought given to memorializing the Wright Brothers achievement, which throughout the 1910s and early 1920s was still shrouded in controversy and patent litigation (see Bilstein 1983; Anderson 1985; Kelly 1944). The Kitty Hawk site was threatened by potential future development, as the Outer Banks was opened up to automobile traffic, and vacation homes became more popular in the area (Stick 1958: 245-46).

Interest in the commemoration of the site began to pick up in the late 1920s in large part due to a revival of patriotic interest in America's contribution to early flight. In 1926, Commander Byrd and co-pilot Floyd Bennett flew over the North Pole in their three-engine monoplane the "Josephine Ford"; and 1927 was the year of Charles Lindbergh's famous solo flight across the Atlantic, an event that won Lindbergh the coveted Orteig Prize and captured the imagination of the world. The next year Amelia Earhart and pilots Stultz and Gordon repeated Lindbergh's feat in their monoplane "Friendship" (Gibbs-Smith 1970).

Airflight was exciting, romantic and appealed to the combined American affinity for adventure and ingenuity. It was time, as the Smithsonian Institution's own acquisitions programs demonstrated, for the seminal event in flight history to be marked (Crouch 1978; Oehser 1970; Boyne 1987).

The first steps toward recognition were taken by the crusading editor of the Elizabeth City, NC Independent, W.O. Saunders (Stick 1958: 241). Saunders advocated the construction of a national memorial on the site beginning as early as 1926. His idea was picked up by congressional representative Lindsay C. Warren of North Carolina— an indefatigable champion of development along North Carolina's neglected coastal area—and independently by Connecticut Senator Hiram Bingham, the famous discoverer of Machu-Pichu, the "Lost" Inca city in Peru (Hiram Bingham 1963). On March 2, 1927, President Coolidge signed an Act "for the erection of a memorial in commemoration of the first successful attempt of a power-driven airplane flight" (cited in Hewes 1967: 12). And on December 17, 1928, following the donation of land secured by New Jersey-based real estate developer Frank Stick, the cornerstone of what was intended to be a memorial "shaft" or "pylon" was laid at

the top of the dune. Simultaneously, a rock-faced commemorative granite boulder was erected by the National Aeronautics Association at the presumed site of the first powered "lift-off" of 25 years before (Hewes 1967). Interestingly, the chosen location for the boulder was based in part on the estimated distance from the by-then dilapidated quarters and hangar buildings, which three witnesses to the flight were still able to identify.

The setting of the cornerstone—which would later be relocated as the idea of the memorial "evolved"— marked the beginning, not the end, of a controversy over the nature of the commemorative monument. Initial plans were for a commemorative marker of some kind, ideally a masonry shaft or similar memorial. However, William P. MacCracken, Jr., the Assistant Secretary of Commerce for Aeronautics, along with a delegation including Herbert Hoover, the future President, recommended a marine light and possibly a coast guard station, combined with a memorial. Saunders and Warren accepted the idea as a necessary expedient—Hoover had expressed his reluctance to dump "a quarter of a million dollars of public money on a sand dune where only a few neighborhood natives would see it" (Elizabeth City Independent November 18, 1932)—but Bingham was determined not "to combine memory with utility" (cited in Hewes 1967: 28). Utility would eventually win out; and while the Coast Guard would not in fact share responsibility for the memorial as once proposed, the final monument would be both a memorial and a navigational beacon—though, as the contract-winning architect would later say, more of a memorial with a beacon than a glorified beacon (Hewes 1967: 34).

The competition for the design was announced in 1928 and closed at the end of January 1929. In all, 36 entries were received by the jury appointed by the Quarter Master General of the Army, the agency responsible initially for the administration of the site. The winning design, approved by the Senate Commission of Fine Arts and the Joint Committees on the Library, was submitted by the New York firm of Rodgers and Poor. Alfred E. Poor, noted in part for his early study of Cape Cod houses, was to be the principal designer (New York Times January 16, 1988; Hewes 1967: 34).

The final design was what we would now consider an "Art Deco masterpiece" (see Duncan 1988). Rising 61' above its 36'x43' base, the granite memorial took the form of stylized wings, suggestive of ancient Egyptian motifs, topped by a viewing platform and beacon. It was fitted with stainless steel and nickel doors and metal relief of the world depicting myths and events in the history of flight, located on the interior (Construction Division Office of the Quartermaster General 1930). A separate powerhouse, in a more conventional Beaux Arts style, was located at the base of the hill to provide power for the essentially symbolic beacon. The whole memorial rested on the Kill Devil Hill, stabilized beginning in 1929 by Captains Gilman and Kindervater of the War Department using a variety of beach grasses, a process later repeated in the nearby Cape Hatteras National Seashore area south of Kitty Hawk (Stick 1958).

In 1933, the memorial was transferred to the National Park Service and the "caretaker," Horace Dough, a native "Banker," became the effective superintendent for both the Kill Devil Hill Monument—the site would not be renamed more appropriately as the Wright Brothers National Memorial until 1953—and the nearby Fort Raleigh National Historic Site, which was acquired by the National Park Service from the State of North Carolina in 1941 (Powell 1965). A superintendent's house was completed in 1936, in a modernistic style roughly compatible with the original monument. A new curvilinear circulation pattern was introduced in 1934, substituting for the original direct concrete pathway built by the War Department, and plans were made, and remade for a commemorative airship, finally added in 1963.

The Park Service's main efforts, however, settled on the interpretation of the site. In 1953, to mark the 50th anniversary of the Wright Brothers' achievement, the two structures used by the Wrights were rebuilt on their approximate original site (reading back from the location of the commemorative boulder, which was also adjusted at this time). The reconstructions were based on fairly complete photographic documents of the Wright Brothers' activities and were in the spirit of interpretive exhibits of the period (see Hewes 1967; Combs and Caidin 1979a). The buildings proved popular with the public and while

continually damaged by the harsh climatic conditions and ever-threatening termite infestation were rebuilt in 1963. The hangar has been replaced again, in 1976. The Park Service also reoriented the site, changing the visitors' entrance from the southside adjacent to the superintendent's residence, to a new location next to the state highway flanking the site. Long planned for, a visitor center, designed by the Philadelphia firm of Mitchell/Giugola, who also created the Liberty Bell pavilion at Independence National Historical Park, was finally added to the site in 1960, as part of the national Mission '66 program instigated by National Park Service Director Conrad Wirth (see Rowan 1963).

The Wright Brothers National Memorial stands now as a fairly complex site. There is the 1931-32 shaft or "pylon," visible for miles; the modernistic, 1960 visitors' center, suggestive in fact of a miniature airline terminal; the reconstructed Wright Brothers quarters and hangars; and the National Aeronautics Association memorial boulder of 1928. The superintendent's residence, the original gateway into the site, and the powerhouse are now off to the edge of the park area, adjacent to the maintenance yards, and no longer constitute major features of the site. The airstrip, used by visiting air enthusiasts, is located to the northwest, just within view of the main visitors' area.

The site is fairly confusing to anyone not familiar with its history. The commemorative "layering" of the park is obscured by the more dramatic interpretive displays, such as the replica 1903 flyer housed in the visitor center, and the reconstructed quarters and hangar. Overall the Wright Brothers National memorial is a kind of object lesson in America's relationship to its own past and the events that have shaped the modern world. The replica plane and the quarters both paradoxically tend to inspire a sense of awe in visitors, who speak in hushed tones when looking in upon the reconstructed quarters of the two brothers, complete with canned goods, books, and burlap-bag bunks. The pylon is a separate memorial, a monument to walk up to, energy permitting, to view the sprawling residential and commercial development around the site. The dune itself, the Kill Devil Hill, is now a grassy knoll, located well away from its location at the time of the Wright brothers' historic flight.

So what then is the Wright Brothers National Memorial in terms of cultural resources management issues? It is in large part a succession of things. It's a hallowed site, but also a commemorative one. It is a place to celebrate the accomplishments of two young inventors from Dayton, OH, but also to recognize the Nation's own efforts to memorialize an event of international proportions. It is a site with two important architect-designed buildings, one by Alfred Poor in the best tradition of early 1930s architecture, and another by Ramaldo Giugola, whose architectural career is now widely acclaimed (see Mitchell and Giugola 1983). The historic site incorporates all of these contributions and gains both significance and texture from the acts of veneration in the form of buildings, memorials, and more recently, instructional exhibits. Like an ancient shrine, it is really the votive contributions that convey significance, not the original event—an event which can never be recaptured or even conveyed given the present site. As the Park Service readjusts its own management program, it is clear that the recognition of this commemorative layering will need to take a higher priority in its own planning policies and its future interpretive programs.

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The Birth of Aviation in Dayton, Ohio: Is a New NPS Unit About to Take Off?

Ronald W. Johnson

Through community action and the political process, the National Park Service may be directed to embark upon a new partnership in Dayton. Several studies and plans have resulted in draft legislation which would designate a Dayton Aviation Heritage National Historic Park. This action marks a decade-long effort by Dayton's citizens to commemorate the Wright Brothers' contributions to the birth of aviation.

In order to respond to the loss of many historic buildings and sites, and to promote Dayton's role in the birth of aviation, a handful of local citizens formed Aviation Trail, Incorporated (ATI) in 1981. During the 1980s, ATI restored the Wright Cycle Company building as a museum, purchased the nearby Hoover Block, and encouraged preservation of the West Dayton neighborhood where Wilbur and Orville Wright lived. At the request of ATI, the NPS completed a National Historic Landmark (NHL) study in 1989 to evaluate approximately 45 sites related to the early aviation story in Dayton. The NPS submitted seven aviation sites or properties to the National Park System Advisory Board for consideration as NHLs—Wright Cycle Company building, Hoover Block, Wright Flyer III, Huffman Prairie Flying Field, Hawthorn Hill, Building 1 and Building 2 (The Wright Company), and the Wright Seaplane Base on the Miami River.

Following the Advisory Board's recommendation, the Secretary of the Interior designated four aviation-related properties as NHLs—the Wright Cycle Company building, Huffman Prairie Flying Field, the Wright Flyer III, and Hawthorn Hill. These properties were recognized as possessing national significance and outstanding physical integrity, which are the requirements for landmark status.

In early 1989, a group of business representatives, government officials, ATI members, and Dayton citizens organized a non-profit corporation known as the 2003 Fund Committee named for the centenary of flight. At the request of Congressman Tony Hall and through funding provided by the 2003 Fund Committee, planners from the Denver Service Center (DSC)-Central Team working with the Midwest Regional Office of the NPS, the Mound City Group National Monument, and the 2003 Fund Committee evaluated the potential of Dayton's aviation-related cultural resources for possible NPS designation. The inter-disciplinary team completed a study of alternatives in April 1991.

The study described three nationally-significant sites in Dayton that could serve as the nucleus of a proposed NPS unit: the Wright Cycle Company building in the West Dayton neighborhood where the Wright Brothers lived for many years; the Wright Flyer III displayed at Carillon Park; and the Huffman Prairie Flying Field at Wright-Patterson Air Force Base. Rather than concentrating on NPS management exclusively for these cultural resources, the study demonstrated how state, local, and private interests, with the NPS acting as a catalytic force, could manage and develop these nationally-significant cultural resources for traditional preservation goals as well as heritage tourism.

The study of alternatives was developed with the cooperation of the 2003 Fund Committee-National Park Service Subcommittee, a 20-member group created to guide the NPS project. The DSC planners presented the draft conceptual alternatives to the NPS subcommittee for consensus and approval. The NPS prepared the document under the direction

of a locally-chartered foundation without hint of untoward dictates to arrive at a predetermined position. The NPS served as a contractor providing professional services to a local client, supported with locally-donated funds rather than Federal appropriations.

The 2003 Fund Committee held a series of strategy meetings to initiate legislation to implement the NPS study. The NPS was invited to send representatives to a workshop with community leaders and congressional staffers to provide input on possible alternative futures for Dayton's aviation-related cultural resources. While the legislation was being drafted, the NPS received numerous requests for technical assistance concerning specific wording and refinement of partnership concepts.

The bill drafters incorporated a partnership approach but emphasized that the Federal Government manage, preserve, and interpret nationally-significant aviation resources. The bill contained a number of provisions including a large-scale federally-chartered and funded commission, creation of a federally-funded preservation district, and potential commitments for urban transit, and properties not to be owned by the NPS. The proposed Dayton Historic Preservation Commission would administer the Wright-Dunbar Historic Preservation District, sponsor loans and grants for making improvements for aviation-related resources, and manage, preserve, revitalize, and promote cultural resources such as the Paul Laurence Dunbar NHL, the home of the noted Black poet (a boyhood friend of the Wrights), and the birth of aviation, especially in West Dayton along the Third Street business corridor and surrounding residential neighborhoods. This expansive legislative direction caused the NPS to oppose the draft legislation at a subsequent congressional hearing.

Regarding new park designations the NPS has been directed by Congress to assume an active partnership role with local resource managers but not necessarily become the principal player—a direction supported by the Department of the Interior. The study of alternatives clearly demonstrates this intention. Management of properties such as Huffman Prairie Flying Field and Wright Brothers Hill (currently under the jurisdiction of Wright-Patterson Air Force Base); the 1905 Wright Flyer III (displayed by Carillon Park, private, non-profit); Hawthorn Hill (operated by National Cash Register as a corporate guesthouse); and the Paul Laurence Dunbar House (Ohio maintains the property as a museum) would remain the responsibility of current owners under potential partnership arrangements with the NPS.

Revitalization of the West Third Street commercial district and its adjacent residential neighborhoods to provide physical and historical context for the Wright Brothers' early years and the origins of aviation should remain the responsibility of local authorities. Additional sites or properties within the proposed urban cultural park or within the community such as the Wright airplane factory building at a General Motors plant, the Wrights' homesite lot (in 1936 the house and a bicycle shop were dismantled and re-erected at the Edison Institute), Greenfield Village and Henry Ford Museum NHL near Detroit, and Orville's laboratory site, could be managed and interpreted through a variety of viable partnerships created with the NPS, state, local governments, and the private sector.

On May 14, 1991, at the Air and Space Museum in Washington, DC, Ohio Senator John Glenn and Congressman Tony Hall announced introduction of a bill (H.R. 2321) entitled "Dayton Aviation Heritage National Historic Preservation Act of 1991" to establish Dayton Aviation Heritage National Historic Park. At the Subcommittee on National Parks and Public Lands of the House Committee on Interior and Insular Affairs, the NPS opposed the bill as drafted, due to the lack of suitability of the majority of the sites and the open-ended costs to the Federal Government.

The Dayton community, including both public and private entities, demonstrated an ability to lead a partnership and could do so without the creation of a federally authorized and funded commission and historic preservation district. The NPS recommended that Federal participation in such a partnership should be limited to existing general assistance mechanisms. The NPS testimony suggested the designation of a small national historic site granted status as an affiliated unit under local management, including a core area consisting of the Wright Cycle Company building and the Hoover Block. Through existing programs, subject to available funding, and upon request from appropriate local authorities, the NPS could be willing to provide short-term technical assistance to preserve and interpret other nationally-significant resources and ancillary structures identified in the bill.

In late November the national parks subcommittee gave the redrafted bill its unanimous approval. The measure will probably receive House action in early spring, 1992. The revised bill directs the NPS to acquire the Wright Cycle Company building and the Hoover Block. The proposed park would also include the Wright Flyer III, Huffman Prairie field, and the Dunbar House, although current ownership would continue. The bill's sponsors heeded the NPS opposition, and scaled back Federal involvement to emphasize a more viable partnership. Although the NPS opposed the first bill at the August hearing, the congressional subcommittee saw merit in the aviation heritage initiative and approved a revised bill. These maneuvers provide a good lesson in the inherent tension that exists between the executive department and the legislative branch concerning the designation of new NPS areas—despite opposition that Congress may feel compelled to designate new parks for its politically-driven reasons. During this process the subcommittee members saw merit in the commemoration of aviation history. The bill's supporters heeded the opposition of the NPS as they made substantial adjustments to the bill.

In addition to a possible new NPS unit, the designation of a national aviation trail could build on the groundbreaking efforts of the handful of volunteer aviation boosters in Dayton's pioneer ATI. This national aviation trail could feature the Dayton sites, air museums, Wilbur Wright's birthplace near Millville, IN, Fort Myer, VA, and Kitty Hawk, NC, among others. A nationwide thematic framework is needed to link aviation resources in a comprehensive package for preservation and interpretive purposes for the vast number of Americans who remain fascinated with the birth and development of aviation.

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An Examination of the Variable Density Wind Tunnel: NASA's Most Unique National Historic Landmark

Harry A. Butowsky

The Variable Density Wind Tunnel (VDT) at the NASA Langley Research Center in Hampton, Virginia, is a little known facility that is not familiar even to historians of American aviation history. The VDT, an unimposing structure, was constructed during the period from 1921 to 1923 at the direction of the National Advisory Committee for Aeronautics (NACA).

The tunnel was built by the Newport News Shipbuilding & Dry Dock Co., of Newport News, Virginia, and was capable of withstanding a working pressure of 21 atmospheres. It was built of steel plates lapped and riveted according to the usual practice in steam boiler construction; although, because of the size of the tank and the high working pressure, the construction is unusually heavy. The test section was made 5 feet in diameter and the maximum air velocity was 50 mph at a pressure of 20 atmospheres.

By the 1940s the tunnel was obsolete and was gutted. The VDT continued to serve the needs of NACA and was used as a pressure tank to support the operation of other, more modern wind tunnels until it was declared potentially unsafe for further operations in 1978. In order to understand the importance of the VDT we need to look at the history of the development of the airplane by the Wright brothers.

Wilbur and Orville Wright

Wilbur and Orville Wright, the inventors of the modern airplane, were scientists. Unlike Otto Lilienthal and others engaged in the study of flight in the late 19th century the Wrights attacked the problem of developing the airplane in a scientific manner. To do this they built a wind tunnel and tested their theories, both in their bicycle shop in Dayton, Ohio and at Kitty Hawk, North Carolina. In this way the Wrights were able to identify and solve the problems that needed to be overcome to enable man to fly.

After their 1903 success at Kitty Hawk the Wright Brothers returned to Dayton where they continued their work. In 1904 and 1905 working at the Huffman Prairie, now on the grounds of the Wright Patterson AFB, the Wrights developed the Wright Flyer III—the world's first airplane.

From 1905 until 1908 the Wright Brothers stopped flying and working on the airplane. Instead they developed strategies for selling their invention and concentrated on patents for the airplane. By 1908 they startled both the European and American aviation communities with their invention.

Evolution of Wind Tunnel Technology

The success of the Wright Brothers' airplane was followed by a technological backward slide by the American aircraft industry. British, French, and German designers soon surpassed the Wright Brothers and other American aircraft builders. By World War I American leadership in aerodynamic research had unquestionably shifted to Europe. Prominent Americans including Alexander Graham Bell and Alexander Walcott (Secretary of the Smithsonian) and farsighted leaders in the Congress saw the importance of the airplane, not only as a weapon of war but also as a means of transportation that would revolutionize the

world. They were determined that America would take a back seat to no nation in the field of aeronautics.

After intense lobbying Congress passed the enabling legislation creating NACA on a Naval Appropriations Act in 1915. This bill was signed into law by President Woodrow Wilson, establishing the National Advisory Committee for Aeronautics (NACA) March 3,1915.

The responsibility of NACA, as the new agency was called, was to "supervise and direct the study of the problems of flight, with a view to their practical solution...." The act also provided for the construction of research facilities and a laboratory site near Hampton,

Virginia. Thus the Langley Research Center came into being in 1917 and set about the problem of building a wind tunnel to conduct aeronautical research. Because of the lack of experience in this area Langley first constructed NACA Wind Tunnel No. l, a low speed tunnel with no return circuit for air passing through the test section. Although useful as a learning tool, this tunnel was obsolete by the standards of the day and produced no significant findings.

In June 1921, NACA's Executive Committee decided to leapfrog European wind tunnel technology and build a tunnel in which pressures could be varied. This concept was strongly advocated by Max Munk, a NACA technical assistant, who was familiar with European wind tunnel design from his days at Gottingen.

The purpose of the Variable Density Tunnel was to solve the problem of applying experimental results obtained from scale model aircraft to full size aircraft. Almost all wind tunnel tests at the time were, and still are, performed on scale model aircraft because of the expense involved in constructing full scale wind tunnels.

In a classic set of experiments, Osborne Reynolds (18421912) of the University of Manchester demonstrated that the airflow pattern over a scale model would be the same for the full-scale vehicle if certain flow parameters were the same in both cases. This factor, now known as the Reynolds number, is a basic parameter in the description of all fluid-flow situations, including the shapes of flow patterns, the ease of heat transfer, and the onset of turbulence.

In 1921 all wind tunnels were operating at normal atmospheric pressure using scale models. This meant that experimental results using these wind tunnels were open to question because the Reynolds number obtained did not match those encountered in using full-scale aircraft. Thus, the Reynolds number of a l/20 scale model being tested at operational flight velocities in an atmospheric wind tunnel would be too low by a factor of 20. NACA engineers realized that since the Reynolds number is also proportional to air density that a solution was possible by testing l/20-scale models at a pressure of 20 atmospheres. The Reynolds number would be the same in the wind tunnel as in actual flight.

The Importance of the Variable Density Wind Tunnel

This was the significance of the Variable Density Tunnel. The VDT, for the first time, placed in the hands of NACA engineers a research tool superior to that found anywhere else in the world. The VDT was able to predict flow characteristics of test aircraft models more accurately than any other tunnel then in existence. The VDT quickly established itself as a primary source for aerodynamic data at high Reynolds numbers.

The result of this research led to the publication of NACA Technical Report 460 in which aerodynamic data for 78 related airfoil sections were presented. Information contained in this report eventually found its way into the design of such famous aircraft as the DC-3, B-17 and the P-38.

The VDT led to the production of superior American aircraft that have dominated the airways of the world since that time. All modern Variable Density Tunnels now in operation are but an extension of the original ideal first formulated and put into operation by Max Munk in 1921 with the construction of the original Variable Density Tunnel at Langley.

The Variable Density Wind Tunnel began a tradition of excellence in engineering and creative design that became the hallmark of NACA and the American aircraft industry. The VDT was only the first of a long line of facilities that made America preeminent in the field of aeronautical research and recaptured that spirit of excellence and innovative thinking that was the hallmark of the Wright Brothers.

The Wright Brothers National Memorial, the four newly designated Dayton National Historic Landmarks associated with the Wright Brothers, the VDT and other NASA wind tunnels designated in previous years in the Man in Space Study, (Variable Density Wind Tunnel, Full Scale Wind Tunnel and Eight Foot High Speed Wind Tunnel at Langley and the Unitary Plan Wind Tunnel at the NASA Ames Research Center) link together those early generations of American aeronautical engineers, inventors and scientists who created a world in which time and space have changed forever.

These National Historic Landmarks, not only preserve an important part of America's Aeronautical Heritage, but also help us to remember our history and inspire us to achieve our best.

For further information the following sources are recommended:

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The Rogers Dry Lake National Historic Landmark

When most preservationists think of National Historic Landmarks, visions of buildings with significant architectural or historic associations come to mind. Other visions conjure up well-known battlefields or sites associated with important events in American history. However, the National Historic Landmarks Survey recognizes sites in all areas of significance in American history and increasingly, in recent years, sites that are important in the development of the history of science and technology, such as the Lowell Observatory, in Flagstaff, AZ; the Variable Density Wind Tunnel in Langley, VA; and the Rogers Dry Lake in Muroc, CA, come to mind as examples. Each of these sites shares a common theme—they are technological sites that have been found to be nationally significant in the history of science in the United States. Each has its own unique story to tell. The Rogers Dry Lake, designated as part of the overall Man in Space National Historic Landmark theme study, offers a good example.

The Rogers Dry Lake is 65 miles square and shaped like a lopsided figure-8, 12 1/2 miles long and 5 miles wide. The lake is naturally flat and its surface is unusually hard and can support even the heaviest test aircraft. The lake is dry for most of the year except for brief occasions when rainfall fills the dry bottom to a depth of a few inches. It is the natural resource of the Rogers Dry Lake coupled with other natural attributes of clean air, isolated locations, ideal weather and variable terrain, that first drew aeronautical engineers and the military to the area.

The Rogers Dry Lake was first settled in 1910, by the family of Clifford Corum when they built a combination store and post office for other homesteaders in the area. When the post office refused permission to name the area "Corum," because of the similarity to another California town, the Corum family reversed the spelling of their name to "Muroc" and so named their settlement.

In 1933, the U.S. Army first came to Muroc to design and maintain a bombing range for the Army Air Corps. Within a few years Muroc became a large Army air base testing new generations of fighter aircraft.

At the outbreak of World War II, the lake was used for training P-38 fighter pilots, and B-24 Liberator and B-25 Mitchell bomber crews. During this time, Navy pilots conducted realistic bombing runs on a 650-foot model of a Japanese navy heavy cruiser, dubbed the "MurocMaru."

In 1942, the United States chose Muroc as the best area to flight test the secret Bell XP-59—America's first jet airplane. The Bell XP59 was the first of many generations of airplanes to be tested at Muroc.

By the end of the war the Army Air Force asked the National Advisory Committee for Aeronautics for help in designing and flight testing advanced jet aircraft. NACA responded favorably, and by 1946, NACA engineers from the Langley Research Center in Virginia were working at Muroc on the problems associated with high speed flight testing of advanced aircraft. The most famous result of these early tests was the flight by Air Force Captain Charles E. "Chuck" Yeager on October 14, 1947, when he piloted the Bell XS-1 and passed the speed of sound. Captain Yeager's recordbreaking flight was kept a secret from the American public by both the Air Force and NACA until June 1948, when press leaks forced the Air Force to acknowledge that the speed of sound had been broken.

In 1947, NACA made its presence at Muroc official when it formally established its facility there as the High Speed Flight Research Center. The High Speed Flight Research Center, later renamed the Dryden Flight Research Center, along with the previously established NACA centers at Langley, Lewis and Ames, gave NACA a full complement of field offices in which to conduct research into problems relating to aeronautics and astronautics.

These centers formed the core of the research facilities that NACA would bring to NASA in 1958. They were the foundation upon which NASA would build the American space program.

In 1950, the Air Force renamed Muroc, Edwards Air Force Base, in honor of test pilot Glen Edwards who died in a test flight in 1948. Test pilots working for the Air Force and research technicians working for the Flight Research Center continued their efforts to probe the mysteries of flight.

The major contributions of NASA, using the Rogers Dry Lake over these years were in two primary areas. The first of these was to the early development of supersonic flight technology. The second was on the problem of flight out of the atmosphere, including lifting re-entry during the return from orbit. Unlike other NASA centers, Dryden relied on a new research tool—the research airplane that used the sky as a laboratory.

Research associated with supersonic flight was dealt with during the years from 1945-1959 and was associated with such famous aircraft as the Bell X-1—the first aircraft to fly faster than the speed of sound; the D-558 II Skyrocket—the first plane to fly at twice the speed of sound; the X-3—the first plane to rely on light, tough titanium as the main material for construction; and finally the X-5—the first plane with wings that swept in flight.

In the years from 1959-1981, Dryden made significant contributions to the American space program. During these years researchers at Dryden first tested the X-15, an airplane that represented a cross-over technology that literally took men out of the atmosphere for brief periods of time and returned them to earth. In a sense, the X-15 was both an aircraft and a true spacecraft, for it reached altitudes of 67 miles where 99.999 % of the earth's atmosphere lay below.

The X-15 demonstrated the ability of pilots to fly rocket-propelled aircraft out of the atmosphere and back again to precision pinpoint landings. Information and experience gained by NASA as a result of the X-15 program was to pay dividends later in the design and development of America's space shuttle.

Other Dryden programs that supported the American space effort were the development and testing of the Lunar Landing Research Vehicle that trained Apollo astronauts to land on the moon, and research into the "Lifting Body" program that tested various aerodynamic shapes designed to reenter the earth's atmosphere from space. In 1978, Dryden was home to the space shuttle approach and landing tests that demonstrated that the shuttle could be landed safely once it returned from space. Starting in 1981, the early shuttle flight used the wide and long natural runways at Dryden for landing the shuttle. All shuttle flights land at the Rogers Dry Lake today.

On October 3, 1985, the Secretary of the Interior designated the Rogers Dry Lake, the home of Edwards Air Force Base and the Dryden Flight Research Center, a National Historic Landmark, as part of the Man in Space National Historic Landmark theme study. In common with all of the other National Historic Landmarks that have been designated in the years since the passage of the Historic Sites Act of 1935, the Rogers Dry Lake preserves and relates the story of the important events in the history of the United States.

Lunar Landing Research Facility

This article is taken from a speech delivered in May 1991, by Dr. Harry Butowsky at the unveiling of the newly restored NASA Lunar Excursion Module Simulator (LEMS) and the dedication of the Lunar Landing Research Facility as a National Historic Landmark. With this recognition, the Lunar Excursion Module and the Lunar Landing Research Facility joined the select group of National Historic Landmarks that over the past 50 years have been determined by the Secretary of the Interior to be significant in the History of the United States of America.

National Historic Landmarks are special properties—they commemorate and illustrate our history and culture—they are by definition nationally significant properties, that rank in importance with any historical unit of the national park system. In the 55 years since the inception of the National Historic Landmarks Program only a limited number of properties have been so designated. National Historic Landmarks are identified by theme or special studies prepared by professional historians, they are recommended by the National Park System Advisory Board and are designated by the Secretary of the Interior under the authority of the Historic Sites Act of 1935.

The Lunar Landing Research Facility—with its Lunar Excursion Module Simulator—represents a property that has been determined, through a process of independent study and review, to be important in the history of the United States in the theme of the aeronautical and space sciences.

National Historic Landmarks also teach us about our past. Each site has its unique story to tell to the American people. The Lunar Landing Research Facility tells us how the decision by President John F. Kennedy to land a man on the Moon by 1969 was implemented by NASA in a timely manner. With the decision to go to the Moon NASA had to quickly determine the method of accomplishing the journey. NASA engineers evaluated three means to do this by 1962: direct ascent, Earth-orbit rendezvous (EOR), or lunar-orbit rendezvous (LOR).

Direct ascent to the Moon was ruled out because of the size of the launch vehicle required to accomplish the mission. The EOR concept was ruled out because two launch vehicles were required to meet mission requirements. NASA chose the LOR concept which called for a single rocket to launch two spacecraft into lunar orbit where one would remain in orbit while the other would descend to the Moon. The vehicle on the Moon would then boost itself back into lunar orbit, rendezvous and dock with the mother ship, which would then return to the Earth.

While this was a bold plan that held out the promise of achieving a lunar landing by 1969, it presented many technical difficulties. The LOR plan was based on the premise that NASA trained astronauts could master the techniques of landing the LEM on the lunar surface and returning to orbit and docking with the mother ship. The Lunar Landing Research Facility with its Lunar Excursion Module was designed to solve one part of this problem, that is, how to land men on the surface of the Moon. The need for such a facility arose from the fact that there was no direct parallel between the unique piloting problems of the LEM and normal aircraft operating in Earth's atmosphere. Conditions encountered by the LEM were different due to the Moon's lack of an atmosphere and low gravitational force.

The Lunar Landing Research Facility permitted NASA to train the Apollo astronauts to fly in a simulated lunar environment. Experience gained here enabled Neil Armstrong and others to train with a greater degree of confidence on the Lunar Research Training vehicle at Houston and Edwards Air Force Base and eventually to journey to the Moon in July 1969.

The adaptation of this Apollo era facility to serve as an Impact Dynamics Research Facility also illustrates the determination and foresight of NASA engineers and scientists to give to the United States the best aeronautical scientific and engineering research facilities in the world. This tradition dates back to the construction of the Variable Density Wind Tunnel at Langley Field in 1921, and illustrates a proud legacy of engineering excellence and wealth of technical research facilities upon which the American aircraft industry is based today. This legacy enabled America to be the first nation to fly to the Moon and has enabled the American aircraft industry to produce commercial and military airplanes that dominated the skies of the world.

Today, while we honor those who have restored the Lunar Excursion Module we must also recognize the generations of NASA engineers and scientists who conceived of the Lunar Landing Research Facility as well as the Variable Density Wind Tunnel, the Full Scale Wind Tunnel and the Eight Foot High Speed Tunnel and the Rendezvous and Docking Simulator—all National Historic Landmarks in recognition of their contributions to the advancement of the Aeronautical and Space Sciences.

Held in Common: Historic Architecture in America's National Parks

Caroline R Bedinger

The exhibition, "Held in Common: Historic Architecture in America's National Parks," was developed by the staff of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) and the National Building Museum to celebrate the 75th anniversary of the National Park Service and to acquaint the American people with the richness and diversity of the historic structures entrusted to the care of the National Park Service. From December 6, 1991 to March 1, 1992, "Held in Common" was exhibited at the National Building Museum in Washington, D.C. The majority of the drawings and photographs in the exhibition were produced by HABS/HAER.

The focus of the exhibition is the lesser known cultural resources that the National Park Service protects and interprets: the man-made places, structures, and objects that reflect our history as a nation.

As part of its responsibility for cultural resources, the Park Service manages more than 20,000 structures of historic importance throughout the United States. Structures at eleven National Park Service sites are presented in the exhibition. They were selected because of their wide spread geographical location and because they are each unique types of buildings that are found in the park system. The goal of the exhibition is to increase visitors' awareness of structures in the National Park Service.

With funding made available from the National Parks Preservation Fund, established at the National Park Foundation through a generous contribution by Citibank Visa and Mastercard, this exhibition will be traveled by the Harpers Ferry Center. "Held in Common" will be exhibited throughout the United States at a variety national parks so as to make Americans better aware of the great variety and diversity of historic structures under the care of the National Park Service. For more information about the traveling schedule of this exhibition, contact Susan Cadwalader at Harpers Ferry Center (304-925-6214).

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Apocalypse Now? The Fate of World War II Sites on the Central Pacific Islands

Dirk H.R. Spennemann

With the 50th anniversary of the Japanese attack on Pearl Harbor just behind us, it is time to take stock of the impact this event and the subsequent four years of warfare had on some parts of the Pacific. Not in terms of death and destruction, or in terms of changed political alliances, such as the creation of the (former) Trust Territory of the Pacific Islands, but in terms of the visible remains of these times and the role they play in the modern world.

As early as the late 1930s some of the islands of Micronesia had seen the development of large Japanese naval and air bases. After the outbreak of the war, with the expansion of the area conquered by the Japanese, further base development took place in the Philippines, Indonesia, Kiribati (the former Gilbert Islands), Nauru, Papua, New Guinea and the Solomons. At the same time, the other combatants developed their own bases, such as Eneen-Kio (Wake Island)—later to be conquered and further developed by the Japanese— Samoa, Tongatapu (Tonga), Viti Levu (Fiji), Funafuti (Tuvalu, the former Ellice Islands), Efate (Vanuatu, formerly the New Hebrides) and so on. While the U.S. bases as well as those in the Japanese-conquered areas were of a temporary nature only, the Japanese bases in Micronesia had been built as permanent installations.

The impact of the American offensive left many of these bases by-passed by the U.S. forces, cut off from supplies and "left to wither on the vine," with thousands of Japanese soldiers dying of starvation. At the same time the U.S. erected their own temporary bases in Micronesia concurrent with their advance.

Many of the Japanese military installations had been destroyed from a military point of view by the often daily bombing runs, but much of the substance of the buildings is still around. In modem terms this means that these islands are littered with war remains, ranging from runways and other parts of the air installations to piers, gun positions, bunkers and the like. The artifactual inventory includes shipwrecks, airplane wrecks, tanks, vehicles, as well as heavy guns, an abundance of unexploded ammunition and aspects of after-hours life in the form of beer bottles and the like. Battlefields were left behind littered with burned-out tanks and vehicles, scattered small arms and ammunition; even the orderly U.S. withdrawal from temporary bases after the Japanese surrender left behind a great number of remains. The concentration of such remains in Micronesia had been so great that it had acquired the nickname of "Rust Territory."

What is happening to these sites today? Some are still in use. After having originated as fighter and bomber strips built by either side, a number of airfields and runways are still in use, while others, based on World War II strips, have been substantially enlarged and have become hubs of modern aviation. Henderson Field on Guadalcanal in the Solomon Islands, and Nadi Airport in Fiji immediately come to mind, but so are Fua'amotu Airport in Tonga, Funafuti in Tuvalu and a number of strips in the Republic of the Marshall Islands. Roads are sometimes still used, such as the island road on Efate (Vanuatu).

In several instances bunkers and the like are now used as sheds and pig sties, and larger structures, such as air command centers or ammunitions depots, are used for human habitation. The radio-direction finding and command building of the Japanese base on Taroa Island, Maloelap Atoll, Republic of the Marshall Islands, serves as a church.

Other sites have been left untouched and vegetation has reclaimed them. But this historical heritage has been exposed to some destruction and impairment by a number of factors, which

leaves us with little compared with what had been left behind after surrender in September 1945, but with a great deal compared with other historic battlefields and sites.

From the late 1950s until the mid 1970s, local and foreign entrepreneurs pillaged these sites in search of scrap iron and especially non-ferrous metals. For some islands scrap metal was a major source of revenue. In the Marshall Islands, for example, scrap metal was the second largest export commodity in the late 1960s. One of the effects of the Jeanette Diana affair, a U.S. purse seiner caught by the Solomon Islands fishing illegally in their fishing zone in 1985, was that scrap metal imports from the Solomon Islands were prohibited by the U.S. These scrap metal drives continued the destruction of the historical resources at an unprecedented rate. While a bombed and burned-out generator station was still easily recognizable as such, these generators were cannibalized for the copper wiring of the anchors, the fly-wheels, and the like. What remains is often a sorry sight.

In retrospect, the scrap metal collectors, as well as the well-intentioned cleanups and the removal of unexploded World War II ammunition during the same period caused more structural damage to the World War II heritage than the war itself.

Now a new threat has developed from people collecting war remains, labeled "relics," to increase their spiritual value and thus the collector's justification for taking them in the first place. These artifacts end up in their private collections or for sale to major U.S. and Japanese museums specializing in this line of business. These collectors range from one-time individuals—who encounter a number of artifacts and take one "for the fun of it"—to fanatics driven by the desire to possess a complete collection of all Japanese infantry gear or the like. Apart from these individuals, there are also a few who come to the islands to obtain war planes and other remains for eventual restoration and resale to museums. Their argument is commonly that they will take a number of plane wrecks in order to return one restored plane to the community. In the end, this most likely does not happen, but the island is stripped of all plane remains since it takes parts of more than one wrecked plane to restore a plane.

The Republic of the Marshall Islands recently had to deal with such an attempt, and so had the Solomon Islands Museum. In Belau a court case is ongoing on the rights to salvage and export a submerged plane. Salvaging of shipwrecks and their cargo is also an ongoing problem, as recent events in Papua, New Guinea testify. The level of legal protection of this kind of heritage is often either non-existent or only too wide-meshed in many Pacific countries, which are also plagued by lack of a sufficient number of trained staff to manage the resources. Any removal of artifacts or any further damage and impairment of the sites and resources will lead to the depletion of that part of the Pacific Region's historic heritage to a level that the overall integrity of some resources may be gone forever.

People, especially collectors with a vested interest, have argued that the remains are left to rot and decay and that islanders do not really care about them or at least did not care about them in the past. The question not asked is why they should have cared in the first place. With some exceptions the Pacific Islanders were not actively involved in and had little stake in the war. It happened around them; it happened against them. Their islands were bombed and burned; their gardens burned by napalm or destroyed by tanks plowing through them; their villages shelled by naval vessels and canoes sunk by aircraft; the islanders themselves were commandeered for forced labor, experienced food shortages and starvation. Some of them were even executed because of suspicion of collaboration with the enemy. In short, the great Pacific War, which forms an important event in world history from a Western and Eastern point of view, is all but a very short intermission from the Pacific Islanders perspective. It is a time of painful memories and thus a time better forgotten. And it would have been largely forgotten were it not for all the war remains lying about the atolls and islands of the Pacific, which even 50 years after the event cause carnage by hidden ammunition exploding on unsuspecting villagers.

But these remains have signified little to the Pacific Islanders and if they did, they were reminders of that painful period. The entire period would have been repressed were it not for all those who come to see these sites. They come to see the sites on land, and they come to dive on the sunken ships. The sunken Japanese fleet on the bottom of Chuuk (Truk) lagoon

has become a Mecca for divers. And so have many shipwrecks in the Solomon Islands, and so will the fleet sunk in 1946 during the nuclear testing period on Bikini Atoll, Republic of the Marshall Islands.

At the same time sites on land, such as the air bases on Mile and Maloelap Atolls, Republic of the Marshall Islands, while part of the World War II history of Efate (Vanuatu) is promoted by Air Vanuatu in the in-flight magazines of their partial parent airline Ansett, advertising Efate throughout Australia. With tourism espoused by many Pacific Islands governments as a new and major source of national revenue, if not as a panacea, these war tourists have been recognized as an economic force, and with them the sites they come to see. The World War II remains have become national assets and as such they are in need of proper management, now more than ever. The Tourism Council of the South Pacific has recently financed the restoration of the Japanese coastal defense guns at Betio, Tarawa Atoll, Republic of Kiribati—an indication of the importance a regional tourism organization gives World War II-related tourism.

There are four horsemen of the apocalypse for historic sites: the first is war and the impact wreaked on sites and collections; the second is neglect and destruction labeled modernization or development; the third is the army of avid collectors, raping and pillaging sites, as well intentioned as some of them may be. The fourth of the horsemen of the apocalypse is about to visit upon these sites: the tourist. And the tourist will not come alone but with many of the same: with hundreds of feet trampling over the site, poking here, poking there, with hundreds of curious hand-pulling there, picking up this and that and chucking it back in the general direction it came from. Some are descendants of the third horsemen and will take away some parts of the resource, little by little, but with a steady flow. The dimensions and complexities of several of the sites are daunting; management and visitor surveillance are problems in view of extremely limited staffing.

The Historic Preservation Office of the Republic of the Marshall Islands, with financial support from the Department of the Interior, Office of Territorial and International Affairs, has begun a program to take stock of the existing resources, ranging from complete airbases _ with aircraft wrecks, gun emplacements with guns installed, concrete installations, personnel shelters, bunkers, support structures including vehicles and the like. The lagoons of several atolls are littered with wrecks of ships and aircraft, or with war surplus material discarded by the U.S. forces after the Japanese surrender.

Majuro Lagoon, for example, sports a huge graveyard of U.S. military vehicles ... The program, which will cover the atolls of Jaluit, Mile, Maloelap and Wotje, all locations of major Japanese bases, focuses on the survey of the extant World War II. sites, which will be mapped, inventoried, described and documented. Based on these surveys, management plans for the resources will be drawn up to determine the needs and directions of future management and preservation efforts. Ultimately, tourism management and development plans will be developed for each atoll to ensure that the onslaught of the brigade of fourth horsemen will not cause more detriment to the resources than all three previous horsemen taken together.

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CRM at East Base, Antarctica

Cathy Spude

Robert Spude

The ice-breaker slowed to the pace of a row boat as it crunched through the brackish ice of the LeMaire Straits. Disturbed crab eater seals looked briefly toward the big red boat, then slid away into the sea. Penguins, startled in disbelief at the intruder, dove off their ice blocks. We were bound for Stonington Island, site of America's and Antarctica's most recently designated historic monument. Captain Alex of Erebus ensured our safe arrival on February 21, 1991, the final destination of a journey that began six months earlier with a phone call.

Much of the environmental community is disturbed about the untidy nature of the continent, and the National Science Foundation, concerned as well, had initiated measures to clean up former research stations.

While planning their effort, they recognized the historic significance of "East Base, Stonington Island," site of an early winter-over expedition. Further research and conferences changed the NSF mission from clean-up to one of sympathetic preservation of the site while ensuring that hazardous materials were removed. After a 1990 field check, they found that East Base, the oldest remaining U.S. base in the Antarctic, had a host of artifacts. That is when they called the National Park Service for technical advice. In February, we boarded a boat bound for Antarctica.

East Base was established as part of Admiral Byrd's third expedition to the Antarctic (1939-1941). Known officially as the U.S. Antarctic Service Expedition (USASE), the full scale exploration of the continent was supported by President Roosevelt. Admiral Byrd established two bases, West Base at Little America III and East Base on Stonington Island. The base was a cluster of U.S. Army, knock-down buildings built by a crew of 23 under Richard Black. The men used a Curtiss-Wright Condor airplane and dog sleds to survey the peninsula. In 1941, as wartime pressure increased and the pack-ice in the bay prevented a planned departure by ship, Black decided to hurriedly evacuate the base by air. Crates of food, a spare plane engine, a tank and tractor and much gear were left behind. In 1947-1948, the privately funded Ronne Antarctic Research Expedition (RARE) re-occupied East Base. Finn Ronne, Richard Black's second in command, led RARE and conducted more explorations. The RARE expedition was also significant for being the first site where women (Edith "Jackie" Ronne and Jennie Darlingon) wintered-over in the Antarctic.

When we arrived, on a calm, sunny (55 degrees) uncommon Antarctic day, the completeness of the site amazed us. Buildings and material culture were in surprisingly good shape. Pothunters and bottle collectors would have destroyed a similar 50-year-old site in the United States. Trash dumps contained material in incredible condition—a 1939 Reader's Digest in which one could read about sex education in public schools, a shirt from Ike Musselman, one of the USASE crew, bottles from the doctor's office, a spare 1930s Curtiss-Wright plane engine, hay piles, and three of the buildings. Everything had a history, a history pieced together by published books, records at the National Archives and interviews. Mrs. Jackie Ronne drew us a layout of her hut on a napkin at a MacDonald's restaurant in Washington, DC before we left. It helped piece together on-the-ground evidence: stacks of trail mixings, caches of coal for stoves, and on and on.

Our report, a description of resources and recommendations for management, will be used by the National Science Foundation to manage the site and, in the immediate future, remove any hazardous material: a corbel of acid from the science lab, sulfuric acid from the doctor's office and other dangers. The team will repair and make air-tight the buildings, unfortunately much altered on the interiors by a nearby British base. The former bunk house was used as a

seal-slaughter house and is befouled with the waste. Preservation crews will patch the building and lock it shut. Its fate is uncertain. The valuable artifacts in the trash dumps will not be salvaged at this time. At present a light covering of gravel from the island will serve as a cap to ensure their preservation, allowing future archeologists to excavate the site based on our field mapping and photographs, as well as improve the present unsightly appearance of the rust-colored dumps.

As the preservation and clean-up effort is underway, the National Science Foundation will prepare interpretive signs to ensure that the East Base Historic Monument is not impacted by increased visitation. The site, as a listed Antarctic national monument, may become a destination point for the few tourist boats that venture south along the scenic Antarctic Peninsula. The number of visitors to the site are few, but during our journey we met Australian, French and British tourists, the former while we were at East Base.

As the movement for a world park on Antarctica continues to be discussed and introduced in Congress, we need to continue to stress the importance of people in the Antarctic story. The East Base site is but one piece of the whole century and a half of exploration and discovery. The site deserves preservation. Cultural resource management will continue to be an important part of the management of Antarctica.

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Joint NPS-TVA Slump Restoration Project at Russell Cave National Monument

Arthur McDade

A torrential rainstorm on July 4,1989, presented the staff of Russell Cave National Monument, AL, with a serious resource management situation. Russell Cave is one of the most significant archeological sites in the southeastern United States, with a continuous human occupation covering 8,000 years of prehistory. The July rainfall caused major flooding of a seasonal creek that feeds into the entrance of the cave, creating a huge pool of swirling water 20' deep. The flood water seriously undermined an embankment in front of the sensitive archeological area. When the water receded several days later, a major portion of the archeological embankment slumped off into the creek, exposing lithic and ceramic artifacts. Without restoration work to shore up the embankment, more serious damage to the park's significant archeological resources would result.

Park staff received permission to initiate stopgap measures to prevent further erosion. Wire fence and netting were staked down at the bottom of the slump area in order to support the embankment and capture eroded earth. A “Triple X” compliance form was completed and sent to the NPS Southeast Regional Office, outlining the restoration work that was required. What was urgently needed was significant reinforcement of the whole embankment area, to prevent further slumping. Through the auspices of the NPS Southeastern Archaeological Center (SEAC), and John Ehrenhard of the NPS Southeast Regional Office, rehabilitation assistance was secured from Bennett Graham, Chief of the Tennessee Valley Authority's (TVA) Archeological Resources Protection Division. Archeologist Graham reviewed the situation and provided technical expertise and supplies for the restoration of the slump area (interestingly, Graham's father was one of the original archaeologists who excavated Russell Cave in the 1950s, and Bennett Graham himself spent many a night camped out in the cave with his father during those early digs). On a field trip to Russell Cave in March 1990 he directed and assisted park resource management staff in reducing the embankment slope to 65 degrees, and in staking a geo-web "honeycomb" support over the erosion area. Dirt and sand from the creek were used to fill in the geo-web, and native plants were restored. All hopes were that the geo-web would hold during the next flood.

The natural revegetation of the slump area during the spring and summer that followed provided a lush reinforcement to the buried geo-web support. Park resource management staff monitored the area to determine whether the restoration would stand up to subsequent high water and erosion. The slump area has successfully withstood heavy rainfall and flooding on several occasions since the restoration, and has returned to its historic appearance.

The project successfully restored a critical erosion area that threatened the centerpiece archeological resource of Russell Cave National Monument. The project cost very little, thanks to the generous contribution of supplies and technical advice from archeologist Graham and the TVA. It is a classic example of multi-agency collaboration for the preservation of a Federal cultural resource, a collaboration that saved thousands of scarce resource management dollars.

Arthur McDade is a park ranger at Chickamauga and Chattanooga National Military Park, GA. He was formerly park resource management specialist at Russell Cave National Monument, AL.

Stabilization Project: Santee Indian Mound

Donnie B. Barker

During the evening of September 21, 1989, Hurricane Hugo passed through South Carolina, devastating much of the state. The damage on state parks alone exceeded $4.5 million. One of the many storm-damaged historic sites in the park system was an Indian temple mound located in Clarendon County, known as the Santee Indian Mound. As the storm crossed almost directly over the mound, all of the trees were either blown down or damaged beyond recovery.

Since 1948, the South Carolina State Parks Division has leased a 2.8-acre portion of the Santee National Wildlife Refuge which includes the Santee Indian Mound. The Parks Division, therefore, works closely with Federal as well as other state cultural resource agencies in the management of this resource. Considering the enormous workload on the Parks Division as a result of the storm, and the fact that the mound's surface was well covered with debris and not subject to erosion, the delicate task of removing debris from the mound was postponed until the following spring.

In April of 1990, the Parks Division arranged a meeting at the site, which included the deputy state archeologist, state parks staff, and the debris removal contractor, to discuss the cleanup of the mound. The work, completed in the following two days, involved cutting trees and attached vines at ground level. Additional cutting was then required to reduce the debris into small sizes which were hand carried off the mound. It was determined at that time that the remaining vines and weeds on the mound were not sufficient to control erosion and a stabilization plan for the mound would be necessary.

Consultation began with the National Clearinghouse for Archaeological Site Stabilization, Andropogon Associates Ltd., biologists and nurserymen, and other sources pertinent to a stabilization plan.

On March 12, 1991, a task force formed to oversee the mound's stabilization met at the site to discuss details of the proposed plan. The task force included two archeologists from the National Park Service, an archeologist from the State Historic Preservation Office, the deputy state archeologist, the manager of Santee National Wildlife Refuge, and state park personnel. As a result of the meeting, letters of approval for the proposed stabilization plan were later received from the State Historic Preservation Office and the regional director of the National Fish and Wildlife Service.

Stabilization Plan

Santee Indian Mound is typical of pyramidal, flat-topped mounds that were widely distributed throughout the southeastern United States. It is, however, the only Indian mound of its type in South Carolina that is open to the public. Interpretation, protection and stabilization methods consistent with public access were all considerations in designing the plan.

Step 1 The first step was to kill the existing vegetation on the mound to prevent competition with the new ground cover to be added. Monsanto's Roundup herbicide was selected as the best way to accomplish this objective. Roundup enters the plant by being absorbed through green leaves and stems and is carried to the root system. It loses its herbicidal qualities on contact with soil and then is rapidly biodegraded by soil and water micro-organisms into natural products—carbon dioxide, water, nitrogen and phosphate. Existing vines and weeds on the mound were sprayed with Roundup with two applications two weeks apart. After two more weeks, a crew of eight workers cleared the dead vegetation from the mound by cutting all existing plants at the surface and removing them by hand. This

laborious task took three days. The goal was to kill the root systems but leave them in place to help stabilize the ground surface. Hand rakes were used to remove small debris and expose the ground surface for good seed contact, with minimal disturbance. At this point, the locations of three small holes made by "pot hunters" and uprooted trees were recorded and lined with black plastic before being filled with yellow sand, clearly different from the gray sandy loam of the mound.

Step 2 Hydroseeding the mound with Bermuda grass was completed on May 7, 1991, immediately following the removal of the dead vegetation. Hydroseeding was selected because it causes less disturbance to the ground surface and controls erosion better than other methods of seeding.

Hydroseeding involves spraying the ground surface with a mixture of grass seed, fertilizer, cellulose fiber mulch, an organic tackifier to hold all the material together, and water. Soil testing indicated a pH of 6.3 which is ideal for Bermuda grass, making it unnecessary to add lime. Bermuda grass seed was selected because it is a native grass of South Carolina, it requires low maintenance and is drought resistant, it has shallow roots and forms a thick mat at the surface, it is tall enough to discourage walking through (12"-18"), and it provides a clear visual outline of the mound.

Hydroseeding Process

The hydroseeding process was modified to the particular needs of this mound. Since the ground surface was irregular and could not be smoothed out and prepared as is normally done before hydroseeding, a second application of cellulose fiber and tackifier was added over the initial application that included the seed and fertilizer. This second layer was to help insure protection from erosion on the steep slopes before the grass sprouted, keep the seeds and fertilizer in place, and prevent the seeds from separating from the irregular ground surface as the cellulose fiber dried. This procedure was suggested by Andropogon Associates Ltd. and apparently worked very well.

Grass Seed

A small amount of rye grass seed was included in the hydroseeding mixture. It grew rapidly and helped control erosion until it was crowded out by the Bermuda grass. The combination of 2/3 hulled and 1/3 unhulled Bermuda seed was used to help ensure a successful stand of grass. The hulled seeds would sprout in 21-30 days, while the unhulled seeds would sprout in 35-50 days. If weather or other uncontrollable circumstances damaged the grass from the hulled seeds, the unhulled seeds were already in place.

Fertilizer

In addition to 8-8-8 and 10-10-10 fertilizer, a 16-4-8 slow release fertilizer was used to eliminate the need for possible additional applications during the first summer, which would have required walking on the slopes of the mound.

Preliminary arrangements were made to water the mound but the unseasonably wet summer made it unnecessary. The biggest problem during the first season was the growth of weeds, apparently from dormant seeds already on the mound. The problem with resprouting of weeds that had been sprayed with Roundup was minor. The weeds grew rapidly and shaded the sunlight from the sprouting Bermuda grass. This made it necessary to walk on the mound, cut the weeds and remove them by hand. The process will be continued when necessary until the grass crowds out the weeds. It is expected that, in two or three years, this maintenance need will be greatly reduced and the mound will be covered with a thick growth of Bermuda grass up to 18" high. Annual soil samples and the general appearance of the grass will determine the need for additional fertilizer in the future.

Donnie B. Barker is the state park archeologist, South Carolina Department of Parks, Recreation & Tourism, Columbia, SC.

Cultural History in National Parks: The Case of Broom Point, Newfoundland

James E. Candow

Until recently, the Canadian Parks Service maintained a fairly rigid distinction between its natural and cultural resources, commemorating the former at national parks, and the latter at national historic sites. Cultural resources located within national parks fared poorly because the Parks Service's standard approach had been to expropriate the land of people who resided within park boundaries and to remove all vestiges of human occupation, after which the landscape was allowed to revert gradually to its "natural" state.

Several factors, including protracted legal battles waged by former residents, have given rise to a new era in the Parks system, where it is now recognized that cultural resources can play a valuable interpretive role at national parks. A restored fishing station at Broom Point, Newfoundland, in Gros Morne National Park, presents a compelling example of the advantages of this new approach. It results in the preservation of buildings and artifacts associated with a disappearing lifestyle, enriches the park visitor's experience, and fulfills the department's environmental mandate by raising questions about the interaction between humans and nature. Broom Point's teeming marine life has made it a prime fishing location for over 2,300 years. Its earliest fishermen were Paleo-Eskimos of the Groswater and Dorset cultures. From 1713 to 1904, French fishermen enjoyed fishing privileges on all or part of Newfoundland's west coast, a fact reflected in area place names. Broom Point itself is a corruption of the French "Point Brun" (Brown Point). English settlement on the west coast dates from the first decade of the 19th century, when French fishermen were absent because of the Napoleonic Wars. Broom Point received its first permanent inhabitants, Alex and Sara Short, in 1808.

Settlement remained modest until the 1860s when there was a boom in the herring fishery, caused by the bait requirements of the American, French, and Nova Scotian bank fleets. The decline of the herring fishery after 1875 was more than offset by the emergence of a lobster fishery. Lobster had become commercially important in Nova Scotia and New England in the 1820s, and it was a Nova Scotian who erected the first lobster canning factory on Newfoundland's west coast in 1873. By 1887 the lobster fishery provided employment for 1,000 Newfoundlanders.

Industrial-scale lobster canning factories soon gave way to small, family-run operations. In a production pattern common to the coast, Broom Point's 10 inhabitants produced 25 48-lb. lobster cases in 1900.

In the early 20th century, permanent habitation at Broom Point gave way to a pattern of seasonal occupation, by which fishermen from other communities migrated to the site at the start of the fishing season and left when it ended. Brothers Tom, Steve, and Alex Mudge of Norris Point purchased property at Broom Point in 1941. Together with their families, they fished each summer at Broom Point until 1975. Faced with failing health, the brothers sold the property to Parks Canada (now the Canadian Parks Service), so it could be incorporated into Gros Morne National Park (established 1973). The property included a cabin, a fish store, and a "factory," so-called because the Mudges canned lobster and salmon there. The factory blew down in the 1980s, but the other buildings have survived and are now the focus of Canadian Parks Service interpretation at the site.

In 1981, interpretation planning for Gros Morne National Park identified a cultural history theme: "Evolving Lifestyles Focused on the Sea." Commemoration of the park's human history did not begin until 1989, when a temporary exhibit of late-19th and 20th-century photographs was installed in the Lobster Cove Head Lighthouse. In 1990, this was replaced by the permanent "Evolving Lifestyles" exhibit, which treated the entire history of human

habitation in the park. At the same time, Broom Point was opened to the public. The Mudges' fish store and cabin were restored and furnished to the mid-1960s period, and the garden which the Mudge ladies tended was re-established.

As historical restorations go, the Broom Point installation is extremely accurate. Although the Mudge brothers have all passed away, other family members, including their widows, are still alive. It was therefore possible, through a series of recorded interviews with family and friends, to gain detailed knowledge of the Mudges' fishing operation and lifestyle at Broom Point. The feeling of trust which developed between the Mudges and Parks staff was reflected in the family's decision to provide many original artifacts for inclusion in the installation. This was fortunate, since it proved more difficult to locate some 1960s artifacts than artifacts from other centuries. The site is staffed by two area fishermen, including one who fished at Broom Point while the Mudges were active there. This provides the visitor with an opportunity for first-hand knowledge that is rare in the Parks system.

Visitors seem almost immediately at ease at Broom Point, probably because it is such a refreshing change from the usual historic buildings associated with elite figures or particular architectural styles. Put another way, the visitor feels at home. It may be, too, that because Broom Point is interpreted to the mid-1960s, the visitor does not face the same demands on his or her imagination and sensibility as when confronted with a site from a previous century.

The Mudges' fishery was a family enterprise very much in the mold of the traditional Newfoundland inshore fishery. In the 1950s that fishery came to be seen as an economic liability, and government accordingly promoted the growth of a modernized offshore fishery that was technology intensive and required fewer workers. The government hoped to improve the product and to raise the standard of living of those fortunate enough to remain in the industry. Over the past four decades, this has entailed a transformation of the Newfoundland fishing industry. Unfortunately, that transformation, combined with the impact of Canadian and foreign overfishing, has caused a drastic decline in fish stocks and has precipitated a crisis in the fishery.

The Broom Point installation therefore not only allows visitors to learn about a type of fishery and associated lifestyle that have almost disappeared within a generation; it also raises fundamental questions about the marine ecology, and the impact that fisheries modernization has had upon it. It points out, as well, the impossibility of divorcing cultural and natural history in a resource economy such as Newfoundland's, and ultimately confirms the wisdom of the decision to include cultural history as an interpretive theme in national parks, where human activity, good or bad, has played a role side by side with nature that cannot be ignored.

James E. Candow is a historian in the Atlantic Regional Office of the Canadian Parks Service.

Spanish Architectural Drawings for the United States in Foreign Archives

James C. Massey

Fortunately for the study of architectural history in the former Spanish territories of the United States, from Puerto Rico and Florida to California, the Spanish government was a great record keeper as a result of a highly organized colonial bureaucracy. There is a great wealth of architectural and engineering drawings for the American colonies, perhaps as many as 800 to 900 located in a number of Spanish archives, as well as significant holdings in the archives of Mexico and Cuba. These drawings are not as widely known as might be expected, nor are they comprehensively cataloged, despite almost a century of American and Spanish study of records in these archives. Many specialized studies have been made, including those of National Park Service structures (particularly at St. Augustine and San Juan) and regional studies in Puerto Rico, Louisiana, and Florida. The most important of these studies was carried out by the Instituto de Cultura Puertorriquena for Spanish records related to Puerto Rico. Also, many individual scholars, both American and Spanish, have worked on selective research projects based on these archives. The basis for studies of American documents in European archives, including those of Spain as well as of Cuba and Mexico, was established by a remarkable series of missions carried out by the Carnegie Institution in the early years of this century. These and most other studies have generally been more concerned with manuscripts and maps rather than with architectural and engineering drawings (with some notable exceptions such as the work of Jack D. L. Holmes of the University of Alabama at Birmingham in the 1960s).

In 1966, sponsored by the Ford Foundation and on a leave of absence from the National Park Service, the writer carried out a preliminary reconnaissance of the location and institutional holdings of these records. The findings were published in a 1969 report, Sources for American Architectural Drawings in Foreign Collections, and the survey materials were deposited in the Smithsonian Institution's Museum of American History, which had collaborated on organizing the project.

While significant holdings of architectural drawings were located in Great Britain, France, Denmark, Germany, Spain, Canada, and Mexico, certainly the most numerous sources pertaining to the former Spanish territories of the United States were in Spain, with occasional drawings for other areas as well. The primary institution is the Archivo General de Indias in Seville, which is the central repository of records related to territories now part of the United States. Its collections are noted for their early period, quality, quantity, and breadth of area represented (no fewer than 14 states and Puerto Rico). Of some 3,400 maps and plans, perhaps 400 relate to the United States. These holdings—which were first published in a catalog in 1900—are probably the best known, published, and cataloged in the Spanish archives. Other significant holders of American architectural and engineering drawings include several military archives, particularly the Servicio Historico del Ejercito Archivo in Madrid (especially rich in fortification drawings), which has been relatively well-published by the archives, and the Museo Naval and the Archivo Central Militar in Segovia. There are three significant civil archives with pertinent collections: the Biblioteca Nacional in Madrid, the Archivo Historico Nacional in Madrid, and the Archivo General de Simancas in Valladolid, which is the oldest archive in Spain (founded in 1545).

In Mexico, architectural drawings are found primarily in the Archivo General de la Nacion in Mexico City and probably in provincial and ecclesiastical archives, as well. These cover both the Spanish colonial period and the period of Mexican administration of areas now part of the United States. The Archivo Nacional de Cuba in Havana is known to have significant drawings, but access at the time of my study was not possible. These Cuban records have

been less studied. However there is a four-volume catalog of maps and plans published in Cuba in the 1950s. Subsequent researches by Jack D. L. Holmes were published in the 1960s; and there is of course, the indispensable Carnegie Institution volume for Cuba.

There is a wide variety of drawing types such as architectural drawings of proposed buildings, some built and some not; some pure fantasy; design drawings; as-built drawings; construction details; and engineering drawings for fortifications and bridges. They date from the very earliest periods of settlement, including one for a fort at St. Augustine, believed to date ca. 1595. As might be expected in the settlement of a new land in a contentious age, the records are heavily military and governmental in nature, but there are numerous plans for churches, houses and other types of buildings as well. There are also a number of detailed city plans showing individual buildings, which form an invaluable aid in dating, as well as providing knowledge of roads, landscapes, and, in the Southwest, the acequias. The periods represented extend through the era of Spanish and Mexican governance, which for Puerto Rico takes one to the end of the 19th century.

The maps and plans have most frequently been collected into separate groups of records (mapas y planos), conserved flat with a degree of cataloging. Historically, they would have been folded and bound in with the original records (legajos), and it is fairly certain that there remain plans and maps still bound in the original legajos and not yet known or cataloged. Similarly, comprehensive research requires work with documents that once accompanied the plans in these legajos. For example, I noted the proposed design of an 18th-century church for Monterey, California, which was forwarded to Mexico for review, and subsequently a revised design was sent back to Monterey for execution.

For research it is important to check the many finding aids and catalogs, even though they are not directed solely at architectural/engineering records for America, as well as books that make a substantial use of these drawings, such as American Forts: Architectural Form and Function, by Willard B. Robinson, published in 1977; and La Guerra del Caribe en el Siglo XVII (1964) and La Fortification Abaluartada en America (1978) by Juan Manuel Zapatero.

The wealth of this graphic material is remarkable and its survival and conservation today are extraordinary. We are deeply indebted to the Spanish historical awareness and record-keeping for this.

James C. Massey is a partner in Massey-Maxwell Associates, historic preservation consultants, and president of the National Preservation Institute, which is concerned with technical assistance and training projects. A cooperative agreement between the institute and the National Park Service was signed in February 1991. Mr. Massey is a former chief of the Historic American Buildings Survey and former vice president for historic properties of the National Trust for Historic Preservation.

Washington Report

Capitol Contact

Bruce Craig

102nd Congress: First Session Wrap-up

The first session of the 102nd Congress ended with a flurry of legislative activity. By the end of the session one new historic area had been established, a number of theme studies had been sanctioned, and several boundary expansions were authorized.

With the enactment of H.R. 690 Congress authorized the Mary McLeod Bethune Council House National Historic Site in Washington, DC as a full-fledged unit of the national park system (P.L. 102-211). The Bethune Council House is the home of a famous black educator and leader of the women's rights movement (see Capitol Contact, CRM Vol. 14, No. 4).

n addition, the session saw Custer National Battlefield renamed Little Bighorn Battlefield National Monument; an Indian memorial was also authorized for the area (P.L. 102-201). Two new National Historic Landmark theme studies received congressional blessing—one for African American History (P.L. 10298) and another focusing on American Labor History (P.L. 102-101). Boundary expansions for the Monocacy National Battlefield (P.L. 102-211), Morristown National Historical Park (P.L. 102-118) and Stones River National Battlefield (P.L. 102-225) also were enacted into law.

Stones River Boundary Expansion

During the closing hours of the first session, as Congress prepared to act on a 300-acre addition to the Stones River National Battlefield in Tennessee, the state's congressional delegation learned that a church had recently bought a 24 acre parcel of land in the middle of the new proposed boundary expansion. The property the church purchased was historically significant, as it included the site and lands associated with the Cowan farmhouse, an area of concentrated fighting during the 1862 battle.

Church officials felt that God had led them to that particular site for their new church edifice and told the congressional delegation that the church did not want to see the land in the park boundary nor were they interested in selling to the Government. Congressional aides, local historic preservationists, and NPCA negotiated with the church to see if officials could be persuaded to change their minds about the 24-acre parcel. Though preservationists were willing to pay fair market value plus an incentive payment if officials would agree to relocate, the church remained adamant—they would not sell. As a consequence, the Tennessee delegation had the church parcel deleted from the boundary bill which then passed and was signed into law by President Bush. While the church has yet to begin construction, officials have promised to work with the National Park Service to minimize the visual impact and potential loss of integrity to the battlefield.

Steamtown Gets Authorization Hearing

Back in 1986, in an Interior and Related Agencies Appropriations bill, money was earmarked for Steamtown National Historic Site in Scranton, PA. Funding for the area was provided to "further public understanding and appreciation of the development of steam locomotives in the region." Since then, through fiscal year 1991, about $43 million has been appropriated to Steamtown. Today, the area operates on a budget just under $2 million and has approximately 60 full-time employees.

While Steamtown has continued to receive Federal monies for some time and is considered a National Park Service unit, the area is controversial as it has never been formally authorized by either the House or Senate committees that have jurisdiction over national park matters.

On October 8, 1991, Congressman Joe McDade (R-PA) introduced H.R. 2737, a bill authorizing the formal "establishment" of Steamtown. On October 22, 1991, the House Subcommittee on National Parks and Public Lands conducted a hearing on McDade's bill as well as another introduced by the congressman, which seeks to authorize additional appropriations for the park. Three panels of witnesses testified both in support and opposition to the area's establishment. On November 20,1991, a substantially rewritten bill was reported out of the House Interior and Insular Affairs Committee. Among other provisions, the rewritten bill established an Advisory Committee to assist in the development of the park and caps the amount that can be spent on Steamtown at $58 million. The legislation has yet to pass the full House or be heard in the Senate.

If you would like more information on any of the legislation discussed above, drop a note to me at: NPCA, 1776 Massachusetts Avenue, NW, Suite 200, Washington, DC 20036.

NPS Symposium Calls for Reforms

Loran Fraser

As readers of CRM know, the 75th Anniversary Symposium of the National Park Service—October 7-10,1991—stimulated extraordinarily frank dialogue among the 600-plus Park Service and outside participants about the need for organizational change. The final report of the Symposium Steering Committee is due this month and it is certain to spark excitement. It describes the National Park Service as "beset by controversy, concern and weakened morale within," and it calls on NPS leaders to institute a broad program of reforms to rejuvenate the organization. While it is impossible to predict how this will play in Washington, early actions are encouraging. Immediately after the Symposium, NPS Director Ridenour charged Deputy Director Cables to spearhead action on the report, to create a team of senior and mid-level personnel to propose implementation strategies. At Ranger Rendezvous in November, a number of actions were announced, and since then, WASO has:

- created a Ranger Series Task Force— now meeting with the Office of Personnel Management on qualifications and classification standards for the park ranger series
- scheduled a joint meeting of cultural and natural resource managers (March 10-12) to outline and initiate steps to expand communications between program areas and to strengthen common research methodologies
- prepared a legislative package to submit to Congress—now in Departmental review
- set up a Strategic Planning Office in Denver to help with implementation and to guide management over the long-term
- established a "Lead by Example" task force to identify ways the Service can model and promote environmentally-sensitive management (scheduled to meet February 27-28)
- developed a proposal for a mandatory Servicewide orientation program
- established a task group which is at work preparing proposals for the Service to better inform employees about non-park programs

Additionally, though late in the process, funding increases were included in the 1993 budget to address other concerns raised by the Symposium, including:

• $8 million for up to an additional 1,000 seasonal interpreters in 130 parks and $3 million to expand the "Parks-As-Classrooms" concept to extend our educational outreach

• $23 million to speed improvements in employee housing

• $10 million for a Targeted Resource Recovery Program to strengthen our science and research capability

• $400,000 to expand social science programs, including new initiatives to collect data about visitor use and crowding

• $60 million for the Land and Water Conservation Fund state grants program (nearly triple last year's appropriation) and $40 million for the Historic Preservation Fund

• $8 million for the Rivers and Trail technical assistance program ($3 million more than last year's appropriation)

• $5 million for a new challenge cost-share program to encourage new partnerships to preserve America's natural and cultural heritage

• $1.7 million for the Servicewide Intake Program (double last year's appropriation) to strengthen our efforts in the recruitment and retention of a culturally diverse work force

• $300,000 to base-fund the Strategic Planning Office

In early February, the Deputy Director's team met in Washington to begin planning the broader implementation program. A preliminary draft of the final report and a range of models to organize the effort were discussed. It is likely that a variety of special working groups and task forces will be created. Team members will recommend people for these efforts, and readers should contact them to volunteer to participate. Members are:

Bob Barbee	Mike Finley
Wallace Hibbard	Dick Powers
Maria Burks	Maureen Finnerty
Steve Kesselman	John Reynolds
Diane Dayson	Denis Galvin
Emest Ortega	Dick Ring
John Debo	Paul Haertel
Stan Ponce	Rick Smith
Kate Stevenson	

Dick Marks, Nancy Nelson, and Loran Fraser are providing staff support to the Deputy Director.

The Symposium report will be available Servicewide in late March. All employees should read the report, discuss it with fellow employees (organize meetings explicitly for this purpose), and look for opportunities to get involved.

Preservation Resources

Review

Yosemite, the Embattled Wilderness by Alfred Runte. Lincoln: University of Nebraska Press, 1990; xii + 262, index; $24.95 hardbound. Reviewed by Steven F. Mehls, principal investigator, Western Historical Studies, Inc., Lafayette, CO.

Alfred Runte appropriately entitled his work to provide readers with a perspective of the difficulties encountered in the battle between preservation and use at Yosemite National Park. Focusing on two primary issues, the management of a natural sanctuary and the resultant environmental erosion by development, Runte relates the story of Yosemite. While the author focuses on natural resources, many of his same arguments easily apply to cultural resources as

well. In essence, this book examines in microcosm the inherent tension in the National Park Service's mission to both make the park areas accessible to the current public and to preserve their resources, natural or cultural, for future generations. Runte, while challenging park decisions, does understand and amplify myriad conflicting choices facing resource managers. This book is useful to the general public as well as cultural resource professionals. As a needed addition to the literature on national parks, Runte addresses many important issues that will continue to remain critical for managers, visitors and interested persons as visitation increases but budgets do not. Runte's readable style frames the issues within a historical perspective.

Runte does not retrace the career of John Muir nor does he provide a detailed chronology of events in Yosemite National Park. Rather, this is a study of natural environment management beginning with the 1864 Yosemite Park Act which established the 60-square mile park for scenic preservation. Subsequently the 1890 Yosemite National Park Act set aside an area approximately 25 times larger.

From 1865 onward concern was voiced although sometimes suppressed, that the beauty of Yosemite would be seriously damaged by the arrival of hundreds of thousands of annual visitors. Frederick Law Olmsted, in 1865, provided a manifesto for park management and visitor usage. His preservationist report was not released and his resignation in 1866 from the Yosemite Park Commission resulted in the loss of a strong pro-resource voice. Instead, visitor management became the primary concern of park staff. No doubt a similar pattern could be discovered at any number of parks established for their historic values. Runte's historical perspective is timely given recent continued debate over the issues of protection and preservation, visitation and access limitation for national park resources.

Runte details the changes as park staff concerned themselves with management of people and resulting resource manipulation. The issues and conflicts the author discusses seem vaguely repetitive as only the time and players changed. He traces the compromises between the ideals of preservation, and the need for visitor access that changed the natural environment in many ways. He argues that the lack of consistent dedication to preservation is not peculiar to Yosemite. Rather, it is inherent in national parks administration and management generally. National parks, cultural or natural, exist for the wide audience, which requires certain amenities. Visitation creates stress which results in a further cycle of resource degradation. Runte grudgingly concedes that the ideal of preserving a pristine locale is probably not viable under those circumstances.

Runte has effectively used the Yosemite Research Library, other archives and numerous secondary sources to delineate the issues and major battles between preservation and development. Protection of resources and the contradiction inherent in the concept of management are well detailed and should be of particular interest to cultural resource managers as only the locales vary in this increasingly acrimonious debate. Runte argues strongly in favor of preservation through education and behavior modification. Many of his arguments could be, and have been, used in histories of other national parks. This volume is a significant addition to the growing body of literature documenting the consequences to the natural or historic resources from the congressionally-mandated tension inherent in the Service's mission to both preserve and make accessible America's natural and cultural wonders.

Publications

"Protecting the Past"

The National Trust has published a guide entitled, Protecting the Past from Natural Disasters," by Carl L. Nelson, which shows how everyone who cares for our past can prepare for, respond to, and recover from the next disaster. Available in paperback for $14.95, plus applicable taxes. Order from National Trust for Historic Preservation, Mail Order Division, 1600 H Street, NW, Washington, DC 20006; 202-673-4200, or 1-800-274-3694.

"Downtown Design"

Developing Downtown Design Guidelines by Janice Pregliasco, AIA, is a valuable tool for anyone concerned with design guidelines. To order, contact California Main Street Program, California Department of Commerce, 801 K Street, Suite 1700, Sacramento, CA 95814; 916-322-1398.

Archeology Technical Brief

A new report entitled Legal Background of Archeological Resources Protection (Technical Brief No. 11) is the latest in a series of technical information reports that the NPS Archeological Assistance Division publishes. Protection of archeological resources on Federal lands is examined in its legal context, both historically and current. Laws that shape preservation, such as the Antiquities Act of 1906 to the most recent 1988 amendments to the Archaeological Resources Protection Act (ARPA), are listed and examined in detail. Technical Brief 11 is available free of charge by writing to Publication Specialist, National Park Service, Archeological Assistance Division, P.O. Box 37127, Washington, DC 20013-7127.

New Directions for the National Register

Antoinette J. Lee

The National Register of Historic Places has issued four new publications: National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, National Register Bulletin 16A: How to Complete the National Register Registration Form, National Register Bulletin 16B: How to Complete the National Register Multiple Property Documentation Form, and National Register Bulletin 39: Researching a Historic Property. These publications offer comprehensive and detailed guidance on preparing National Register of Historic Places nominations, including how to research, document, and evaluate historic properties.

National Register Bulletin 15 represents an update and revision of earlier guidance on using the National Register criteria, criteria considerations (exceptions), and integrity aspects in evaluating historic and archeological properties nominated to the National Register of Historic Places. National Register Bulletin 16A and National Register Bulletin 16B give separate guidance for preparing nominations of individual properties to the National Register

(16A) and preparing multiple property documentation forms(16B). The latter form provides justification for nominating groups of properties organized by theme or geographical area to the National Register.

National Register Bulletin 39 is a new publication that provides guidance on researching historic properties. It includes pertinent advice, such as knowing when enough material has been gathered to complete a National Register form; how to work with research libraries and collections, and a "general guide to sources" organized in a matrix according to material and the material's sources, potential information yielded, and possible application to the National Register nomination. The publication concludes with a list of additional sources and bibliography.

The purpose of the new National Register publications is to increase the public's knowledge of the National Register program and to encourage nominations of properties by members of the public. In addition, the publications provide detailed guidance for Federal, State, and local agencies; preservation professionals, and others regarding the requirements of the National Register program.

In order to obtain a copy of these publications, contact: Information Desk, National Register of Historic Places, Interagency Resources Division, National Park Service, P. O. Box 37127, Washington, D.C. 20013-7127. Copies of National Register Bulletin 16A and National Register Bulletin 16B also may be ordered from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402-9325. Please use the following stock numbers: 16A: #024-005-01096, $8.50 each; 16B: #024-005-01092-1, $2.00 each.

Preservation Press to Distribute National Register of Historic Places

The Preservation Press of the National Trust for Historic Preservation is now the official distributor for the National Register of Historic Places, 1966-1991. The National Register is a complete listing of more than 58,000 properties of national, state, and local significance entered in the National Register of Historic Places by the National Park Service. The National Register is published every other year; the 1992 edition includes all listings through June 30, 1991.

This essential reference contains the comprehensive list of all properties listed in the National Register of Historic Places, the nation's official list of historic places deemed worthy of preservation by the National Park Service. The National Register was established by the National Historic Preservation Act of 1966. Listings are arranged by state and county and include street address, date of and criteria for listing, and NRIS (National Register Information System) number. Indication is made of National Park Service properties and designated National Historic Landmarks. A brief introduction discusses the National Register and its functions during its first 25 years as well as provides a description of historic preservation and its benefits to the Nation. Also included in this new edition is a complete list of state and Federal historic preservation offices and officers.

The listings are from all across the United States and its territories and include 42,753 buildings, 8,029 historic and archeological districts, 4,048 sites, 2,944 structures, and 144 objects.

The Preservation Press accepts both telephone and written orders. Ordering information for the National Register of Historic Places is ISBN 0-89133-1956, 894 pages, 11 illustrations, $98.00 plus $4.00 shipping and handling. For telephone orders, call 1-800-766-6847; VISA, MasterCard, and American Express charges are accepted. For written orders, write to: Preservation Press, 1785 Massachusetts Avenue, NW, Washington, DC 20036.

NPS Museum Handbook, Part III

Anthony M. Knapp

In his book Manual for Museums, Ralph Lewis states that a museum collection is well managed when the objects and specimens in the collection are: "chosen purposefully, readily available for study, properly preserved, accompanied by adequately organized information about them, and used to their potential in the museum's program." The time and money invested in the documentation, preservation, and protection of park museum collections is ultimately justified by the use that they receive by park staff and visitors and by non-NPS persons and institutions. The appropriate use of park museum collections needs to be encouraged and developed.

The Curatorial Services Division has begun the project to write Part III of the NPS Museum Handbook to provide guidance on the use of museum collections. This part of the handbook will provide guidance for using objects and specimens in exhibits, furnished rooms, interpretive and educational programs, and research. It will provide answers to such questions as: What are the policies and procedures for responding to requests to reproduce original objects for commercial sale?; What are the policies and procedures for responding to requests to perform destructive analysis on objects as part of a research request?; How does a park mitigate the effects of special events on museum objects?; and How does park staff read an exhibit plan to ensure that preservation, protection, and maintenance concerns for objects identified for use in an exhibit are addressed? The handbook also will focus on other uses that may be used to extend information about collections to wider audiences, including publications, multi-media technology, photographs, and reproductions of original materials. In addition, it will provide guidance on copyright and use of museum objects and use of collections by Native American and other cultural groups.

A new Museum Handbook Steering Committee has been organized to assist the Curatorial Services Division with development of Part III. Members of this committee are as follows: Michele Aubry, senior archeologist, Anthropology Division, WASO; John Brucksch, staff curator, Historic Furnishings Division, HFC; Dan Chure, paleontologist, Dinosaur National Monument; Dale Durham, regional curator, SERO (committee chairperson); Julia Holmaas, staff curator, Exhibit Planning and Design Division, HFC; Diane Nicholson, museum curator, Golden Gate National Recreation Area; Carolyn Rose, senior research conservator, National Museum of Natural History, Smithsonian Institution; Virginia Salazar, regional curator, SWRO; and Sandy Weber, interpretive specialist, Division of Interpretation, WASO. Trinkle Jones, archeologist, WAAC; and Steve Harrison, deputy regional curator, SERO, are alternate members of the committee. These committee members, selected for their broad discipline backgrounds and museum experiences, will ensure the oversight needed in this project.

The Museum Handbook Steering Committee held its first meeting in September 1991 to develop a content outline for the handbook and to develop an action plan for completing the project. The draft outline was sent to the field for review and comments in October 1991. The Committee met again in January 1992 to discuss and recommend revisions to the outline based on the comments received from the field. In addition to providing project oversight, each committee member will assist in recruiting authors and coordinating the writing of specific sections.

Watch for future news notes in CRM for updates on this project. The final handbook is to be distributed to the field for implementation in 1994. Part III of the handbook is expected to be available for purchase by non- NPS users through the U.S. Government Printing Office.

Anthony M. Knapp is staff curator in the Curatorial Services Division, National Park Service, Washington, DC.

Information Management

NPSTV? NPS Enters the Video Age

Betsy Chittenden

On January 20, 1992, NPS Director Ridenour and other NPS staff participated in a meeting that was routine in content, but historic in setting: it was held in two different locations linked by television. In what may have been the first use of FTS2000 videoconferencing services in a civilian Federal agency, NPS offices at 1100 L Street were linked to the Main Interior Building. By the time you read this, videoconferencing installations should be operational or nearly so in all 10 NPS regional offices, the Albright training facilities at Grand Canyon, and the Denver and Harpers Ferry service centers.

How does it work? A videoconferencing setup is plugged into a standard power outlet and into special phone lines. This setup consists of a television camera, a stereo television monitor, a control keypad that includes the microphone, and an "electronics module" about the size of a bread box. Some models combine the camera, monitor, and module into a rolling storage cart. Optional equipment that can be hooked up include a VCR, an extra camera, a personal computer, or a document camera (similar to an overhead projector except with a small television camera mounted where the reflector would be). On-screen menus guide the user through dialing a phone number to connect to the other conference site. Once connected, one person at each end controls the camera angles and what appears on the screen. Using the main screen and a small screen window, the controller can see one or two images at once, flipping back and forth between any combination of the other location, what the others are seeing of you, and images projected from any optional equipment. If a VCR is installed, the conference can be videotaped, videotapes played for viewing, or still images "captured" on videotape.

Something a little different about videoconferencing is that you spend most of the time controlling the camera at the other location, and the other location controls the camera aimed at you, switching the camera angle from speaker to speaker as the meeting progresses. Camera angles that can be preset by the users make fast switching from speaker to speaker easier. Another difference is the picture quality for moving images: movements are somewhat jerky and slow, not unlike the effect that is produced by using a strobe light on dancers in a disco (still images, and people sitting still, are not affected). Most people are not bothered by this, however, and quickly become used to it, particularly as most meeting situations don't involve much movement. As with a handheld camcorder, focusing is automatic and no special lighting is needed, although, like Richard Nixon, one quickly becomes aware that wearing brighter colors on television makes you more visible. Operating the system requires no special training: most people need only five or ten minutes to learn it using on-screen menus and experimenting with the controls; programming your VCR is probably more difficult.

All of the equipment involved in videoconferencing is fairly standard television technology, with the exception of the codec. The codec, contained in the electronics module, is the equipment that changes the standard analog television signal into a digital signal that can be transmitted over telephone lines. The telephone lines used are special only in that they are a higher capacity than those normally used for voice telephone service. (These lines still have limitations in the amount of signal that can be transmitted, which produces the jerky quality of motions.) It was dramatic improvements and price reductions in the codec that made videoconferencing affordable for the NPS—setups can be had for around $25,000, and typical phone line costs are about $30 per hour, contrasted with prices only a few years ago of

several hundred thousand dollars for each equipment setup and phone costs of up to $2000 per hour.

Two levels of videoconferencing service are being implemented in NPS as part of the larger NPS ParkNet communications project. Parknet "Channel 1" is a higher quality service, which will deliver "near full-motion" pictures, at a higher cost. ParkNet Channel 1 is being installed at the Albright Training Center and in the training facilities at WASO. The rest of the Service will receive ParkNet "Channel 2" service with the standard picture quality, sufficient for most purposes. A major improvement to the NPS videoconference process planned for FY93 is the addition of a "multipoint bridge" that would allow up to 16 users to conduct concurrent videoconference meetings (currently while any site can call any other site, only two sites can conference at once). While each videoconferencing site will have its own rules for access set by each office (yet to be determined), it is anticipated that accessing the facilities will be little different than reserving conference rooms and lining up standard audiovisual equipment is now.

Why is videoconferencing important to the Service? Videoconferencing will help achieve goals of improved communications, improved productivity, and reduced expenses among the geographically dispersed offices of the National Park Service. Training can be held in two places at once; guest speakers can give presentations without traveling to the training site. The service centers are planning to use videoconferencing for fast track design and construction projects, as discussions can be held with both parties simultaneously looking at the same drawings or illustrations. A cultural resource site could be filmed with a camcorder, and meeting participants "see" and discuss the site without necessitating travel costs or time. Equipment and shipping crates have already been purchased to allow videoconferencing equipment to be shipped quickly to major disaster sites in the Service, facilitating management of fast-moving disaster situations. These are only the initial ideas for using videoconferencing; let your imagination be your guide and make television a part of your toolkit.

Library Program Underway

The National Park Service Library Survey conducted in 1990 by the Information and Telecommunications Division of WASO (see CRM, Vol. 14, No. 2, 1991) revealed a wealth of unique and valuable research resources all over the NPS. The custodians of these resources, the regional and park library managers, as well as the park staff and researchers who use the resources, are anxious to find better ways to organize them and make them available to a variety of users. For example, an automated NPS "Union Catalog," listing the combined resources of all the park libraries, could help park managers keep abreast of the information and research their counterparts are compiling or producing in other parks. A prototype system has already been implemented in the Pacific Northwest Regional Office. For park managers, knowledge of who has done what, and where they have done it could be a significant saver of time and money in making park management decisions, answering park visitors' questions, producing interpretive materials, developing and implementing funding strategies and supporting research efforts inside and outside the NPS.

Before NPS libraries are able to automate, there are a number of steps that must be taken. Park libraries must coordinate their systems for acquiring, cataloging and classifying their holdings by developing and implementing NPS library standards and policy guidelines. They must raise the level of staff training and quality of library services. These and other areas of concern are what Diane Mallos, the new NPS Library Coordinator will begin examining over the next several months. Diane plans to work closely with the NPS regional librarians to develop a long-term strategy for funding and developing the NPS library system.

Diane Mallos joined the policy and planning staff in the Information and Telecommunications Division in January 1992. She has a Master of Library

Science/Information Management from Drexel University. Her previous NPS experience includes three years with the Mid-Atlantic Regional Office Planning and Grants Assistance Division where she edited and published a 2000-term thesaurus entitled, The Thesaurus of Park, Recreation and Leisure Service Terms, National Park Service in partnership with the National Recreation and Park Association, 1990. Diane also spent two months at Steamtown NHS where she developed a library policy statement and recommendations for the future development of the Steamtown NHS Library. In addition to her NPS experience, Diane brings an understanding of museums and photograph archives from her 11 years at the Smithsonian Institution's National Museum of American Art. Diane has visited numerous parks and historic sites across the U.S. and is deeply interested in both the natural and cultural resources of the National Park System.

Diane welcomes comments and suggestions for development of the NPS library system as a research resource. Write or call Diane Mallos, Library Coordinator, National Park Service, Information and Telecommunications Division, P.O. Box 37127, Washington, D.C. 20013-7127. Telephone: (202) or (FTS) 343-4430.

Viewpoint

Expanding Public Benefits for the 21st Century

Kay D. Weeks

The NPS grants-in-aid program for project development, begun in the early 70s, requires recipients of grant funds used for interior work to hold open house at least 12 days a year so that anyone who wants to can see how Federal funds were used for interior preservation. This may not be widely taken advantage of by the public—entering someone's kitchen and bedroom that has been fixed up—but the principles of fairness and accountability are there. The '80s Tax Incentives program dropped the specific public access covenants perhaps because of the "credit" vs. "cash" nuance, but probably more because it could be argued that the concept of public benefit was built in to rehabilitation. Commercially speaking, places such as restaurants and shops are open to the public. But how broad a public? When the old covenants were shelved, historic preservation projects moved into an important second phase, supported by a new competitive economic framework. For example, if an old building were turned into apartments, only those who could afford the rent would really see the result of the work. And old buildings turned into rows of expensive shops began to skew public benefit in more subtle ways.

Rehabilitation and Shopping

T.S. Eliot's line comes to mind. "Human kind cannot bear much reality." Thirty years ago I thought this spoke of human frailty. I still do today, but see it in another light as well. Most of human kind has to bear reality; some, however, have the option of escaping for awhile. Eliot is speaking from a privileged point of view. Let's call the group which can afford to escape, "shoppers." By definition, it moves beyond sustenance to the acquisition of things. Let's call the group which must bear reality, "others." It has neither time nor money for optional acquisition.

As we've all noticed, the privileged and the not privileged become increasingly separated as new, architecturally upscale malls move old town centers to safer environments for shoppers—enclosed, patrolled, and highly orchestrated to promote a hearty appetite for

buying things. Streets and older malls are left to "others," while the better off simply walk away into a different kind of space.

An early goal of historic preservation was to counterbalance the destruction of historic neighborhoods and downtowns. The 1966 Act stated: "the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people." To me, this meant retaining the buildings on streets together with their history and sense of place—all for the public benefit.

Regrettably, today, many commercial districts seem to be an extension of the enclosed shopping malls we were trying to counterbalance in the early years of historic preservation—that is to say, although these places are not architecturally enclosed, they are contained by an attitude. High prices and a "thing" orientation connect them in spirit to their newer suburban counterparts. Tight, controlled design are the watchwords here, as randomness and confusion are planned away. The resulting preservation vision is soft and smooth—too smooth to be real history, which, as we all know, is jerky, cluttered, and obscured by subtle or violent overlays of human information. In short, these "Sameplaces" are neither history nor life, but simply good commercial art.

When buildings and neighborhoods from our past are treated like Hollywood sets, more than architecture is lost. These places are doubly exclusionary and doubly dishonest—they not only blur or demolish the real history, what's left is fluffed up and used as shopping places for those who can afford to escape too much reality. The Act never said this: to take working people's history and communities and turn them into upscale mini-malls. Clearly, the Act itself is as relevant in its goals today as it was in 1966: "... should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people." I think it's time to look very carefully at what is meant by public benefit as our programs and projects bridge the 20th and 21st centuries.

Kay Weeks is a technical writer-editor in the Preservation Assistance Division of the National Park Service.

Where to Now?
The Curation of Archeological Materials

Brit Allan Storey

New initiatives in the Federal CRM program are resulting in a crisis in the management/curation of archeological materials in many Federal agencies; 36 CFR Part 79, the Native American Graves Protection and Repatriation Act, and the Secretary of the Interior's museum and artifacts initiative each contribute to the complex issues.

The Federal Government faces a crisis in dealing with curation of archeological materials which is every bit as real as the crisis in records management which resulted in establishment of the National Archives in the 1930s. The National Archives provided a cost-effective, appropriate means of securing and making available records of the Federal government. Before establishment of the National Archives, the records of the Federal government were stored in scattered, inaccessible, inappropriate, and even destructive locations. Not only were the historic records often inaccessible, they survived improper storage and clerical housecleanings only by chance. Records storage neither assured protection of the records nor stored them economically.

That situation for historic records in the 1930s parallels the one faced now for Federal archeological materials. The primary difference is that Federal agencies generally did not give their historic records to outside interests to store while still asserting ownership and control over them. Federal archeological collections are scattered in dozens, perhaps hundreds, of locations - many of which are not even known to the responsible Federal agency. They are stored in locations lacking security, lacking appropriate storage conditions, and lacking accessibility.

The theory of the Federal program is that the Federal Government is investing time, energy, and money, in archeology to protect the information for the benefit of the American people. In reality, however, archeological data is often extracted from sites, inadequately explored, and squirreled away in scattered locations with inadequate finding aids. The data gathered is seldom appropriately synthesized so that the public can understand it.

In some parts of the country, the vast output of artifacts, samples, data, records, and reports from the Federal CRM program has strained or even broken the ability of non-Federal repositories to provide even elementary storage - much less more sophisticated management needs. Many repositories now recognize their valuable gift of free storage to the Federal Government and are no longer interested in storing Federal archeological collections for free; many are charging annual fees (sometime exorbitant) to store the materials; and, even in the absence of proof, we must fear and suspect that Federal collections are being disposed of or culled as internal institutional programs continue to generate more artifacts, samples, data, and reports which are competing for limited storage facilities—and we must not lose sight of the fact that those new materials are of more immediate interest to the current managers of the storage facilities. The Federal response to this breakdown in non-Federal repositories has been the often haphazard and improperly planned development of scattered agency repositories. Often those repositories are unattended (only sometimes truly secure), inappropriate in terms of storage conditions, basically unfunded, and unstaffed. In some situations this storage is very good, but that does not obviate the fact that the overall approach is scatter-gun in effect and extremely uneven in results.

Tremendous amounts of Federal money are going into the archeology program. To both realize and protect the promise of the Federal archeology program, I suggest that it is time to develop an entirely new program for management of archeological collections. It is time to develop a storage program which permits collections to be held in a few centralized locations

where they are easily researched, physically accessible, locatable through finding aids, protected from deterioration, secure, and stored economically.

I suggest it is time for the Federal government to establish an independent agency to serve as a national archeological repository for all Federal archeological collections. This agency would be similar in concept to the National Archives and Records Administration as a repository for Federal historic records. This agency would be a specialist dealing with archeological collections. Like the National Archives, it would have regionalized repositories which could economically warehouse and care for collections —and it could quickly retrieve Federal archeology collections for research. These regional repositories should not only store the artifacts, samples, and data in coherent collections, but they should be responsible to gather and preserve even the ephemeral archeological reports of the region to facilitate needed Federal research. Like the National Archives, this agency would reduce overall costs of curation to the Federal government while greatly enhancing the accessibility and research potential of the collections.

The idea I suggest in the form of a National Archeological Repository is not new. In 1976 a symposium titled "Regional Centers in Archaeology: Prospects and Problems" at the annual meeting of the Society for American Archaeology in St. Louis, Missouri, in 1976, addressed the issue. Soon thereafter, the Heritage Conservation and Recreation Service's 1980 study titled "The Curation and Management of Archeological Collections: A Pilot Study" recommended development of a national system of public repositories.'

The approach I suggest has several advantages which I consider particularly appealing.

• The new agency could provide more economical storage than the Federal agencies can provide individually.

• The new agency should be responsible for efforts to identify, inventory, and protect Federal archeological collections.

• There will inevitably be controversy over ownership of Federal collections deposited in the past in various state agencies, museums, universities, libraries, historical societies, etc..

• On the Federal side, current guidance and regulations assert Federal ownership and control of collections which have not really been in Federal control for years, perhaps even decades. The Federal agencies have not checked on the collections in all that time, and the scrambling which is going on among the agencies clearly shows that they are not sure where "their" collections are. On the repositories' side, they have lost sight of the Federal involvement in the collection and often even think they own the collection. This approach provides a mechanism to clearly establish Federal responsibility over specific archeological collections. Those which are determined to be Federal responsibilities can be collected into centralized repositories while other collections are clearly renounced and no longer present the problem of whether or not they are a direct Federal responsibility.

• Regional repositories would tend to collect culturally affiliated data collections. That would result in ease of research - at least in Federal collections. In point-of-fact, regional repositories would likely be established on the basis of culture areas.

• This approach would relieve Federal agencies of curation responsibilities which are centralized in a single agency with special expertise and its own budget for curation responsibilities. Federal CRM programs are already spread thinly, and this approach will permit agencies to conserve their limited CRM resources in more productive activities instead of dispersing and diluting existing programs.

• This approach will avoid the problem of CRM personnel being assigned the responsibility for management of archeological collections as Federal property. It has been decided that archeological collections are Federal property and part of the Federal property management system. That means that accountable Federal property officers will delegate responsibility for management of archeological collections to custodial officers— CRM personnel. With that assignment is a responsibility to assure the annual inventory and the effective protection of the property.

• Federal archeological collections would be better curated, better protected, and more economically stored than is now the case.

• Research to provide the syntheses and overviews so badly needed to inform and educate the public should be easier with regionalized repositories.

• Regional repositories will eliminate the evolving establishment of individual-agency or several-agency repositories on a haphazard and often ill-conceived, ill-planned basis.

• The Federal property represented in our archeological collections would be returned to proper Federal control and protection.

Establishment of The National Archeological Repository will not be easy. Quite the contrary, it will probably be rather difficult.

Establishment of an independent agency may be difficult or impossible. If that is the case, I suggest the surprising solution that the National Archives and Records Administration (NARA) be expanded, renamed, and assigned this additional responsibility. NARA is the only Federal agency in-place with the appropriate ethic of conservation storage of large masses of materials, accessibility of materials through tight inventory control, regionalized facilities, and commitment to service to researchers.

There are many vested interests which will believe themselves threatened—the National Park Service, the Federal agencies, the current repositories, and various Indian groups are among only the most obvious of those vested interests.

There are many legal issues—for instance: has the Federal Government abandoned collections to the local repository after a given period of years, and what will happen in cases where long-term storage contracts have been signed?

To work out such concerns and issues there will have to be a serious discussion and negotiation period before and during implementation of a program. We must have some idea of the extent of Federal collections over which Federal responsibility and authority are asserted. We must understand the complexities that will be confronted in effectively bringing Federal archeological collections back under the purview of the Federal Government. Another issue which will surely arise is whether such a repository shouldn't also manage the scattered art and artifacts of the Federal agencies. These are all reasons why we must begin to study and assess the situation.

However difficult the going, we must assess the costs to the Federal Government in real money and lost opportunities, and balance those against the economic and intellectual benefits of such a program. When that is thoughtfully done, I am confident that the basic 1980 recommendations of the Heritage Conservation and Recreation Service will be renewed. Some form of National Archeological Repository will be found a needed and important addition to the Federal Government's historic preservation program—one which will reestablish effective Federal control and management of Federal property which is vitally important to understanding our national prehistory and history.

At that point the issue then becomes development of a program by the agencies which is politically acceptable and implementable.

l Heritage Conservation and Recreation Service, Department of the Interior, "The Curation and Management of Archeological Collections: A Pilot Study," (Washington, D.C., 1980).

Brit Allan Storey is the senior historian of the Bureau of Reclamation. He served as a caseworker on the staff of the Advisory Council on Historic Preservation for over 14 years before moving to Reclamation in 1988, and he is the immediate past president of the Federal Preservation Forum. This paper represents the personal thoughts of the writer and does not represent positions of either the Bureau of Reclamation or the Federal Preservation Forum, or of CRM.

Local News

Staffing the Preservation Commission in Montgomery County, MD: A Case Study

Stephen A. Morris

In which branch of local government should staff to the local historic preservation commission be located? Although staffing issues can be a critical factor in the success or failure of a local preservation program, this is a question which is seldom explored in any depth. Typically, where the preservation commission has a staff (many don't), it is borrowed from a planning department or a community development department, i.e., a planner is assigned to work with the commission. Often, such staffing arrangements evolve without careful consideration of their advantages and disadvantages.

The agency in which the staff to the commission is located can greatly affect how the commission relates to the local chief executive and agencies in the executive branch, how it is perceived by the public, how much funding it gets, and how well it is able to carry out its mission. These issues were discussed in unusual detail in a recent report on the Historic Preservation Commission in Montgomery County, Maryland ("A Description and Evaluation of the Montgomery County Historic Preservation Commission," November 1990). Conducted by the county's Office of Legislative Oversight, an independent legislative branch office that conducts program evaluations and investigations for the County Council, the report summarizes the results of a study on the effectiveness of the Commission in carrying out its statutory responsibilities.

Montgomery County, Maryland is a sprawling urban-suburban jurisdiction bordering Washington, D.C. on the northwest. More than 750,000 people live within the county's 495 square miles. Its inventory of historic resources spans more than 400 years and ranges from a blacksmith shop associated with the county's early settlement in the beginning of the 18th century, to early 19th century agricultural complexes, to residential neighborhoods created as Victorian-era railroad suburbs, to the commercial architecture of a 1930s suburban shopping center. The county government's efforts in historic preservation date to the early 1970s although the Historic Preservation Commission was not established until 1979.

For many smaller jurisdictions in less urban places than Montgomery County, considerations about staffing the local historic preservation commission may be relatively straightforward. Coordination between government agencies and concerns about conflicting agency missions are less likely to be problematic issues where most of the players know each other personally and where there are frequent opportunities to exchange information and viewpoints. In more populous localities and those that have developed a full panoply of governmental programs such as housing, community development, planning, parks and recreation, and environmental protection there is a greater need to give careful thought to how to promote coordination between these various programs and historic preservation.

The Montgomery County study was prompted by concerns over the ability of the Historic Preservation Commission to deal effectively with its increasing workload. A volunteer body of nine members appointed by the County Executive and confirmed by the County Council, the Historic Preservation Commission is given by law a wide range of duties. Among these is to approve or disapprove applications for Historic Area Work Permits(HAWPs), which are filed by property owners seeking to alter historic sites listed on the county's Master Plan for Historic Preservation (the local register).

As the number of sites and districts designated on the Master Plan has increased, the amount of time the Commission has spent on reviewing and acting on HAWPs has gone up accordingly, rising to almost 75% of its time. The increasing complexity of HAWPs has also

added to time required for the Commission to process them. This has left the Commission much less time than before to perform one of its other main duties— researching historic resources contained in the county's inventory of historic resources and recommending to the Planning Board which of these should be officially designated as sites and districts on the Master Plan (resources on the inventory receive only limited protection, not the full level of protection conferred to those designated in the Master Plan).

The backlog of unevaluated inventory resources has been especially problematic. The bulk of the county's inventory was completed in 1976 and contains almost 1,000 historic resources. When the county's preservation ordinance was passed in 1979 it was anticipated that the Historic Preservation Commission would have evaluated all of these resources within five years, and either recommended them for designation on the Master Plan or removed them from the inventory. Properties included in the inventory were given interim protection from demolition or substantial alteration until they were fully evaluated. The rate of evaluation of inventory resources declined from a high of 92 in 1981 to a low of 15 in 1988 (for a total of 510 evaluated properties by 1990). This has left a substantial number of properties in "limbo" with property owners restricted in their use of property included on the inventory for an indefinite period of time.

An additional consequence of the Commission's preoccupation with processing HAWPs is the limited attention it has been able to give to providing information and educational materials to the public about historic preservation. Although the Commission produces a newsletter with Certified Local Government grant funds from the Maryland State Historic Preservation Office, it has been unable to implement the comprehensive public outreach program which the county's preservation ordinance intended. Also languishing are the county's Historic Preservation Tax Credits, Easement, and Loan and Grant Programs, which the Commission is charged with implementing.

In spite of the indirect support the Preservation Commission receives from several different county agencies, the study found that the current staffing structure did not enable it to meet effectively all of its statutory responsibilities. As is often the case, Montgomery County’s staffing arrangement evolved over the years as the Commission matured.

In its early years, the Commission received part-time staff support from the Office of the County Chief Administrative Officer with advice regarding the evaluation of historic resources provided by Parks Department historians. At the time the study was conducted, responsibility for staffing the commission was assigned to the Department of Housing and Community Development, which had one professional and an administrative aide dedicated to handling the Commission's work.

The study identified other county agencies providing direct or indirect staff support to the historic preservation program in the County. The county planning office, an independent agency which staffs the Planning Board, has employed one or two historic preservation planners to assist the Board in responding to recommendations from the Preservation Commission on the designation of sites on the Master Plan for Historic Preservation. The Planning Board staff work closely with the Commission staff to coordinate research on inventory resources to facilitate their evaluation and consideration for listing in the Master Plan. The Planning Board staff also screen subdivision applications and forward those that affect designated historic sites to the Preservation Commission for their review.

Other county agencies that have a role in the preservation program include the County Attorney's office which provides the Commission with legal advice, reviews, and edits Commission decisions, and answers procedural questions. The county's Department of Environmental Protection, which issues building permits, also issues or denies HAWPs according to the Commission's instructions; in addition, it maintains a property address database with information on whether or not individual properties have been identified as historic (either through having been listed in the inventory or designated on the Master Plan for Historic Preservation).

The study considered three alternative staffing and administrative location arrangements to improve the Commission's effectiveness:

• Maintaining the status quo, i.e. keeping staff support to the Commission within the Executive branch (in the Department of Housing and Community Development) was the first of these. Greater opportunity to coordinate with other Executive branch departments was seen as a major benefit of this arrangement. Another factor in favor of keeping the Commission's staff within the Department is the fact that acting on HAWPs is a regulatory function which is related to the building permit function handled by the Executive branch. Also, since the Department of Community Development is a large department, it had been "subsidizing" historic preservation by not specifically charging all operating expenses (e.g., use of the motor pool) to the Preservation Commission. However the potential for historic preservation to have to compete with other Departmental priorities was seen as a negative factor in maintaining this staffing arrangement. Another negative cited in the study is the potential for conflict between historic preservation and other policy goals of the Department.

• The second alternative was consolidating the County's preservation efforts in the county's planning agency. Benefits to such an arrangement would include less confusion among the public about where to go with questions concerning historic preservation and the elimination of any duplication of effort by county government staff and staff of the independent planning agency. A major disadvantage, however, would be increased difficulty in coordinating the work of the Preservation Commission with that of Executive branch departments.

• The third staffing option considered by the study was that of establishing the Historic Preservation Commission as an independent commission, either as part of the Executive branch or the Legislative branch. According to the study, advocates for this approach identified several benefits: greater public visibility and identity for the commission as a separate entity not subsumed within a large department; more direct control over budgetary resources; and, reduced potential for conflict between Commission goals and departmental goals. The study dismissed this option on the grounds that it would be too expensive and that it might isolate historic preservation and thereby harm the Commission's ability to coordinate its actions with other county activities that affect the preservation of historic resources.

As a result of the issues raised in the study the County Executive and the County Council decided to consolidate the preservation staff in the county planning agency. As part of this shift the planning agency has been authorized to hire an additional staff person to research unevaluated historic sites on the County inventory (though funding is not currently available for this position).

In addition, Council staff has been directed to prepare amendments to the historic preservation ordinance that implement some of the report's other recommendations including setting a sunset date for the inventory and a schedule for evaluating the remainder of the unevaluated inventory resources. To lighten the Commission's workload, the report recommended additional changes to the preservation law regarding how the Commission handles HAWPs. They include the following:

• authorizing the Commission to delegate to staff the approval of routine applications and those for minor modifications;

• establishing a "consent calendar" in which the staff prepares a list of straightforward and non-controversial applications for an expedited hearing and decision process;

• authorizing the Commission to send controversial and time-consuming cases to the Hearing Examiner in the Office of Zoning and Administrative Hearings for report and recommendation with final decision authority remaining with the Commission.

As the Montgomery County study demonstrates, the placement of the Commission and its staff within the local bureaucracy is an important factor in how well the Commission interacts with other key governmental programs and, ultimately, how effective it is.

For further information on the study, contact Ms. Karen Orlansky, Montgomery County Office of Legislative Oversight, 301-217-7990.

Stephen A. Morris is a preservation planner in the Interagency Resources Division, National Park Service.